Antiquity

A Quarterly Review of Archaeology

VOL. X NO. 37 MARCH 1936

Editorial Notes

MODERN archaeology is primarily concerned with two main problems :—To construct a secure and rigid chronological framework, and to determine the extent and relationship of cultures. The former is itself a prime necessity, but it is also inextricably interwoven with the latter ; and as soon as we begin to investigate the precise relation of one culture to another in a separate region, we are at once confronted with the fascinating mysteries of diffusion. Where were certain technical devices invented ? How did they spread over the world ? These mysteries deserve the closest scrutiny, for it is the business of science to dispel such (not to mystify). Furthermore, the same process of diffusion is still active and therefore of current interest.

It so happens that several articles in this number illustrate these principles and indeed advance our knowledge of the subjects dealt with. The author of the first article reviews the facts concerned with the origin of iron-working, and a Note (p. 87) touches on the remoter but kindred problem of the origin of metal-working, and suggests certain enquiries. Another article (pp. 25–36) illustrates the diffusion, from civilization to its barbaric fringe, of improved methods of building. The neolithic Rhineland village (pp. 89–93) is an example of primitive conditions, it is true ; but, on the other hand, it must also be remembered that it was an *agricultural* community, and as such represented

at that remote date a very great advance on anything previously known in the region, where hunting and collecting had hitherto prevailed. That advance was of course diffused from the land in the southeast where it originated.

The article on Roman Barrows illustrates, if the authors' contention is accepted, what may be called *diffusion by prestige*. In this instance it is the prestige of Roman culture which influences the burial-customs of native provincials. That is a familiar phenomenon, which occurs wherever what is called (by its protagonists) a 'higher', or more technically advanced and powerful, culture impinges upon a 'lower' and less advanced one. Examples of the diffusion of customs of western civilization amongst savage or barbaric peoples may be found in the courts of African chiefs and elsewhere. A minor example was observed by the writer in a modern Tunisian cave-dwelling, where the place of honour amongst wall-ornaments was assigned to certain cast-off trinkets of European origin—a pair of old opera-glasses, an empty picture-frame, an old Vichy bottle. These were displayed and treasured on account of their rarity-plus-prestige-value.

The diffusion of artistic and technical skill is well illustrated by the sculptured crosses of the Dark Ages. They are amongst the finest things of their kind ever produced ; they represent a new and original art-style ; and when we enquire closely into their origin and affinities we find that some of the designs were, as Dr Kitzinger's illustrations prove, obtained from the stock of contemporary patterns in circulation in the eastern Mediterranean ! But in taking over and using these patterns those real artists did not blindly copy them, after the manner of mass-producers and charlatans ; they converted them into their own style, just as Shakespeare converted and transmuted the raw plots of his predecessors.

In this connexion we may quote an interesting criticism of the article on 'Njoya and his script', printed in the last number (IX, 435–42) of ANTIQUITY. The critic considered that the Bamouna

painting (plate facing p. 440) looked like a fake. ' The background is typical West Coast Mohammedan work, but the figure is evidently copied from some Asiatic source, possibly Persian. No African chief ever had a face like that, or that head-dress or raiment ; but you can see them on British Museum post-cards of Persian work '. Agreed ; but if this is a fake, then so are the panels of the four evangelists in the Lindisfarne gospels, which ' would seem to have been copied more or less directly ' from earlier paintings executed in Italy, probably in the 6th century, and brought to England before 684 by Ceolfrid, Abbot of Jarrow (Gilson's facsimile edn., 1923, 1–3). The parallel is exact ; the cultures compared are closely alike, and each borrowed from the repertory of another civilization. To the sophisticated Levantines of the 7th and 8th centuries, the Anglian princelings must have appeared as remote and devoid of significance as an African chieftain appears to some of us today. But the cultural and historical comparison is illuminating, and gives food for reflection.

Dr Kitzinger's article is an important by-product of the work now being carried out in the Department of British and Medieval Antiquities of the British Museum. That Department deals with Anglo-Saxon sculpture amongst other things. Now it will be obvious to all who read the article that, for the study of this, a large collection of photographs is a basic need. A complete collection of photographs of every fragment of Anglo-Saxon sculpture is actually being formed, with a view to the eventual publication of a *corpus* ; some preliminary studies are already in progress. We know that it would be of enormous help to the authorities if any readers who possess (or feel disposed to make) good photographs of crosses and pre-Conquest carvings would send prints to Mr T. D. Kendrick or Dr Ernst Kitzinger, at the British Museum. Such prints will be stamped with the name and address of the owner of the copyright. It would equally help if readers would indicate the existence and present location of any such sculptures as are unpublished and likely to be unknown to students. Crosses are naturally the chief monuments concerned, but nearly all English sculpture relating to the art of the crosses comes within the scope of the survey. On the other hand no attempt is being made systematically to collect illustrations of middle 12th century (or later) tympana, capitals or fonts.

Students of ancient Africa are expectantly awaiting news and publication of the important excavations at Mapungubwe, in the Transvaal, near the Limpopo, conducted by Pretoria University, and referred to in our numbers for March 1934 (p. 103), March 1935 (p. 101) and Sept. 1935 (p. 358). The excavations have been under the direction of Mr Neville Jones and Mr J. F. Schofield, whose excellent work in the past on the Stone Age in Rhodesia, and the Zimbabwe ruins respectively, inspires complete confidence in their scientific handling and publication of this recent undertaking. It may confidently be expected to throw considerable light upon ancestral Bantu movements and cultures, and thereby indirectly to contribute fresh data to the Zimbabwe problem.

The SUBSCRIPTION to ANTIQUITY for 1936 is now DUE. We would remind our Subscribers of the form and envelope inserted in the December number for the purpose of remitting payments. *An early response will be much appreciated as this will save avoidable trouble in having to send out direct reminders.*

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The Coming of Iron

by G. A. WAINWRIGHT

INQUIRY immediately makes it clear that man must first have come to know iron through meteorites. Except for the great masses at Ovifak in Greenland,[1] which are outside the question, iron from earthly sources is not known to occur in the native state. It does, however, occur in metallic form in meteorites (FIG. 2) and is the only metal to do so. In this form it may be found in solid lumps of metal weighing as much as 50 tons (Bacubirito), 36½ tons (Ahnighito), or 15⅔ tons (Chupaderos). But of course most of it occurs in much more manageable sizes—in pieces as large as a man's head, a hen's egg, a pea, or only as dust. But all meteorites are not solid iron. Very many are a mixture of iron and stone (FIGS. 1, 3) or what is to all intents and purposes merely stone (FIG. 4), and so useless to man as a source of iron. All meteorites fall into one of these three classes.

In the British Museum (Natural History) Collections there are 289 meteorites of all classes, which have been observed to fall in the hundred years between 1815 and 1914, and of course the total number, which actually fell but were lost or not seen, must have been much greater. Seeing, therefore, that meteorites have been falling at least since Pliocene times,[2] let us say some 250,000 years or more ago, there must have been plenty of metallic iron lying ready to man's hand when he began to experiment. Moreover, from the accumulated experience of many generations primitive man must have been well aware that ' stones ' fell from the sky, even if this was not exactly a daily occurrence.

The sky must have figured large to such people, and it was an unreliable place, whence came all sorts of dangers and unpleasantness. Stars were not always as secure as they might be, they fell from their places without warning ; at times they were thrown about in a perfect fusillade, especially when, as we say, the earth was passing through

[1] *Encycl. Brit.* 11th ed., ' Greenland ', p. 545. For full details see Flight, *A Chapter in the History of Meteorites*, pp. 26 ff.

[2] Rickard, *Man and Metals*, 1932, II, p. 848.

the Leonids ; thunder pealed up there and lightning flashed ; driving rain and stinging hail poured down on man and beast and plant. But hail and rain were not the only missiles that fell. Sometimes it was fire, which at times split and blasted all in its way, and at times left a ' stone ' lying where it had struck. It came in the forms we now call lightning on the one hand, and meteorites on the other. Each was a blinding flash accompanied by cloud and roarings. These we now know to be rain-clouds and thunder-claps in the one case ; smoke and explosions of the white-hot meteorite in the other. Primitive man could not possibly distinguish between them. In fact among us even today educated, but non-scientific, people are very hazy about them, while uneducated man here and all the world over still accepts them as one and the same.

All the mystery of iron proceeds from the facts shortly indicated above. Iron was the thunderbolt, one of the most appalling powers in Nature. It could split or devastate anything it approached. It was dangerous in the first place, and later, when man began to envisage gods for himself, it became sacred also, coming as it did from above. But whether it was considered holy or accursed depended upon the attitude of the thinker towards the god he thought it to represent, and this passed on to the iron man made for himself. Thus, a man purifies himself before daring to extract iron from its ore, a sword made of it has supernatural cutting power, a magic instrument can force death itself and it is good against fairies or evil spirits ; for does it not constitute the missiles with which constant war is waged in high heaven ? These ideas are fundamental and found wherever iron is known throughout the Old World.

Some of the more famous meteorites which have been held sacred are Elagabalus at Emesa and that of Astarte at Tyre, both in Syria ; in Asia Minor, the Magna Mater at Pessinus, Diana of the Ephesians, and the stone which fell at Abydus and was worshipped there ; in Greece the stone at Cassandria and the Stone of Cronus at Delphi ; and in Egypt, as I hope I have proved,[3] those of Amun and Seth at Thebes and Cabasa respectively. At Mecca still today the most sacred object is the Black Stone of the Kaabah, which again is a meteorite. Plenty of others could be mentioned as being kept in churches or temples,

[3] *Anns. Serv. Antiqq.* (Cairo), XXVIII, 183–7 ; *Journ. Egyptian Archy.* XIX, 49–52 ; XX, 151, 152. For all that proceeds from this confusion of the thunderbolt and meteorite see my series of articles in *J.E.A.*, XVII, ff.

but let that of Casas Grandes suffice. It was found in a room of an ancient Mexican temple carefully swathed in bandages.[4]

Not only were meteorites the only source whence primitive man could come by native iron, but we know that he utilized this source. The most ancient pieces of iron are the beads which the present writer found at Gerzah in Egypt about fifty miles south of Cairo. They were in two groups, which were roughly contemporary at S.D. 60–63 of the Sequence Dating used for the predynastic civilization. They thus date to about 3500 B.C. or earlier. At Ur in Mesopotamia Sir Leonard Woolley found fragments of iron. Coming from one of the royal tombs they date to 3000 B.C. at least and perhaps as early as 3500 B.C. Both the Egyptian and Mesopotamian finds have now been analysed, and have been found to contain 7.5 per cent. and 10.9 per cent. respectively of nickel. This proves the metal to be of meteoric origin, for it is the inclusion of nickel which differentiates meteoric iron from that smelted from the ore, which contains none. All meteoric irons have nickel in greater or less proportion, and in three quarters of them it varies between 5 per cent. and 10 per cent. Our earliest specimens of iron are thus scraps from very normal meteorites. In using scraps of meteoric iron while still in the Chalcolithic Age the predynastic Egyptians were in no way unusual. The Eskimos did so, though otherwise only in the Bone Age,[5] as did the neolithic Indians of Ohio.[6] The Sumerians of Ur were at that time in the early Bronze Age though later they relapsed into the Copper Age.[7]

However, it now transpires that, though not interested in it, man was able at an extremely early date to smelt his own iron from its ores and manufacture it into weapons. A bronze dagger hilt has been found at Tell Asmar in Mesopotamia. It formed part of an untouched hoard of objects in a closed pot, which had been walled up and plastered over during the 28th century B.C. The object was analysed by Professor Desch who reports, ' . . . a bronze open-work dagger handle, in the slot of which was still wedged a fragment of material evidently derived

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[4] O. C. Farrington, *Cat. of the Meteorites of North America*, p. 111. It is an iron meteorite.

[5] For example, R. E. Peary, *Northwards over the Great Ice*, II, 559, 561, 612 and cf. *Brit. Mus. Handbook to the Ethnographical Collns.*, 1910, pp. 248 ff.

[6] Putnam in *The Amer. Anthropologist*, 1930, V, 49; id., in *Proc. Amer. Antiquarian Soc.*, 1882–3, II, 360; Willoughby and Hooton, *The Turner Group of Earthworks, Hamilton County, Ohio* (Camb., Mass., 1922), pp. 50, 51, 65–67.

[7] Childe, *New Light on the Most Ancient East*, p. 292.

from the original blade. A lump of similar material was loose inside the handle, being too large to fall through the perforations. On analysis this material proved to be rusted iron, converted as usual by long contact with the earth into a hard, magnetic, crystalline mass. The position in which it was found leaves no doubt that the blade of the dagger was of iron. Moreover, analysis shows that this iron is free from nickel and is therefore not of meteoric origin. . . . The occurrence of an iron object of terrestrial origin at such an early date is most striking, and of the first importance for the history of ancient metallurgy '.[8] This piece from Tell Asmar and the fragments from Ur are the only scraps of iron yet reported from Mesopotamia before Assyrian times, showing that iron was just as rare there in early days as it was in Egypt. As in Mesopotamia, so will it be seen that in Egypt long before the Iron Age sets in, occasional pieces are to be found of what is apparently man-smelted iron.

In Egypt iron objects are extremely rare until the New Kingdom, and by no means common even then. Thus, over a length of nearly a thousand miles in space and more than two thousand years in time they only appear to consist of the following.

Fourth Dynasty, the famous piece from the Great Pyramid.[9]

Fifth Dynasty, many pieces of chisels, etc. from Saqqarah.[10]

Sixth Dynasty, several pieces of a pickaxe from Abusir and a fairly large heap of broken tools from Dahshur[11]; a lump of iron rust, perhaps a wedge, from Abydos.[12]

Twelfth Dynasty, a large spearhead from Nubia.[13] (FIG. 5).

Seventeenth Dynasty, a broken chisel-point and a ferrule of a hoe-handle from near Esnah.[14]

It is a short and queer list, and much of it very suspicious. The Saqqarah, Abusir, Dahshur, and Esnah pieces are all reported by Maspero. His statements as to the finding, though apparently precise, will not stand scrutiny. They largely occur in footnotes, and were

[8] In Frankfort, *Iraq Excavations of the Oriental Institute* 1932–33 (Oriental Inst. Commun., no. 17), pp. 59–61, and fig. 53, cf. also p. 38 and figs. 30–35.

[9] Vyse, *The Pyramids of Gizeh*, I, 275, 276.

[10] Olshausen in *Zeits. für Ethnologie*, 1907, p. 373, no. 1.

[11] Id., *op. cit.*, p. 374, nos. 2, 3.

[12] Petrie, *Abydos*, II, p. 33. For a good photograph of it and the tools found with it see *Brit. Mus. Guide to the Antiq. of the Bronze Age* (1920), fig. 185.

[13] MacIver and Woolley, *Buhen*, pls. 86, 88 and pp. 193, 211.

[14] Olshausen, *op. cit.* p. 374, no. 4.

PLATE I

FIG. 1. THE PALLAS METEORITE

FIG. 2. THE KENDALL COUNTY METEORITE

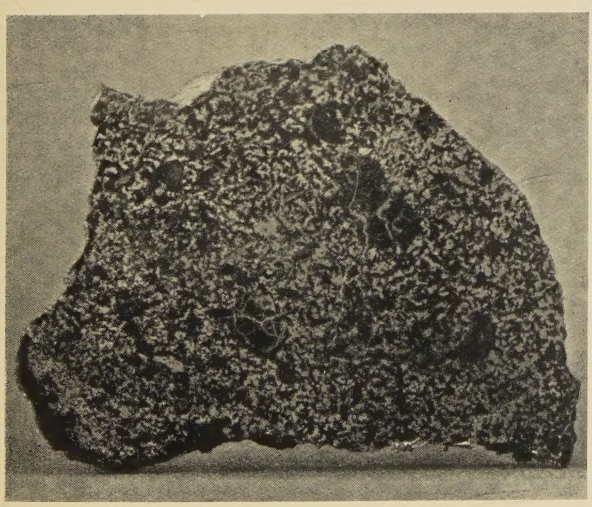


FIG. 3. METEORITE FROM BAREA, LOGRONO

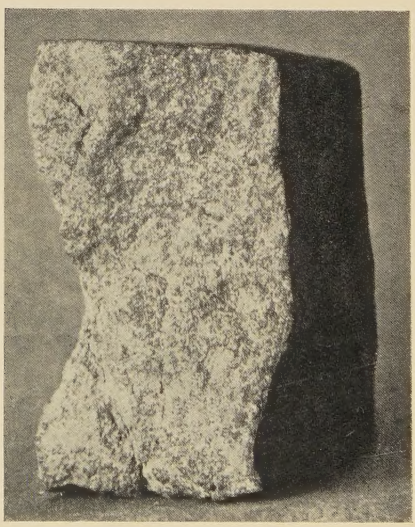


FIG. 4. THE NAKHLA METEORITE

Scale $\frac{1}{3}$

facing p. 8

PLATE II

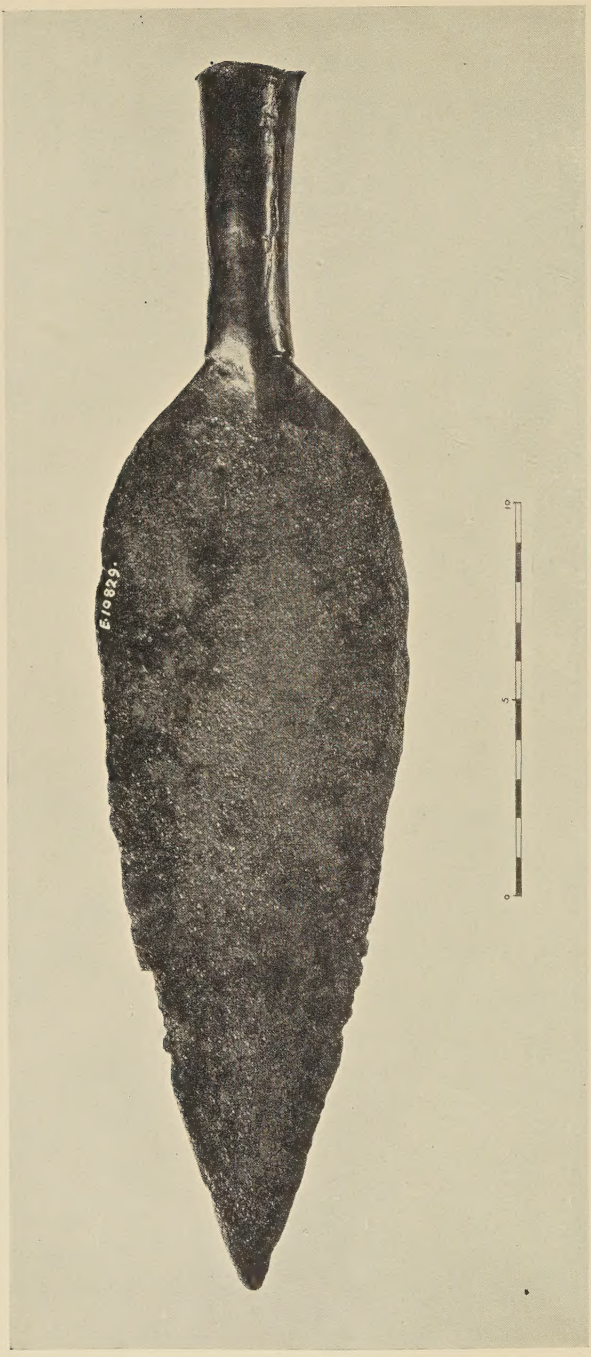


FIG. 5. IRON SPEARHEAD FROM NUBIA, UNIVERSITY OF PENNSYLVANIA MUSEUM (*See* p. 9)

PLATE III

FIG. 6. TUTANKHAMÛN'S IRON DAGGER AND GOLD SHEATH, CAIRO MUSEUM (*See* p. 18)

written entirely from memory, and Olshausen points out various vaguenesses, discrepancies and mistakes, in the accounts. In fact the statements about the Abusir and Dahshur pieces seem to be two varying accounts of one and the same find. Though a very learned man, Maspero was no archaeologist, nor did the conditions of his work make for detailed observation concerning the small objects. In any case ' pickaxe ', ' chisel ', and ' ferrule of a hoe-handle ' all sound like the refuse of modern, or comparatively modern, times, and are no doubt meaningless as evidence for the early use of iron. The serious pieces are those of the Great Pyramid *c.* 2900 B.C., the Abydos lump *c.* 2500 B.C. and the Nubian spearhead *c.* 1800 B.C. Full analyses have not yet been made of the Pyramid and Abydos pieces, but those which have been showed ' traces ' of nickel.[15] This looks as if they were meteoric iron. But if the ' traces ' should prove to be only a fraction of 1 per cent., as it sounds, the iron might perhaps have been smelted from an ore.[16] If so, this would have proved a difficulty hitherto, but such would now be disposed of by the finding in Mesopotamia of the unquestionable piece of smelted iron of approximately the same date. Unless we can know definitely that the Pyramid piece is of meteoric origin, and therefore not modern, the probability of Rickard's suggestion is too attractive. He thinks that it may have been a piece of the tool of one of Vyse's own workmen engaged in the excavation,[17] and one knows only too well how such things may slip down, get jammed, etc. The antiquity of Petrie's lump from Abydos has never been in doubt, but it is urgent that its origin also should be decided.

We now come to the Nubian spearhead (FIG. 5) and here unfortunately the difficulties cluster thick, so that whatever view is taken it remains an enigma for the present.[18] Its discovery is recorded in full detail by competent archaeologists, and it was found in the farthest recess of the tomb by the head of the innermost burial. The skeleton was protected from intrusion by several untouched burials lying between it and the entrance. There was no sign of any sort of intrusion of a later date, and the discoverers record the skeleton as ' untouched ', though in the photograph, plate 86, the arm and ribs are missing from

[15] Rickard in *Man*, 1927, no. 56.

[16] Though very rare such are known to exist though not near Egypt. Rickard, *Man and Metals*, II, 846.

[17] *Man and Metals*, II, 833, 834.

[18] Fig. 5 is from a photograph kindly supplied by the University of Pennsylvania Museum.

one side. Apart from the spearhead, the objects, as well as those from the neighbouring graves, are all of normal late 12th Dynasty type and call for no sort of comment. Hence, it seems difficult to doubt the antiquity of the iron spearhead. Yet this object is unparalleled in a number of features. In the first place, as Petrie says of it, ' no such form in iron is known nor any iron weapons till long after this ' and it is ' one of the strangest specimens '.[19] He is unable to find any ancient form the least like it among his vast collection of shapes from all over the world. He only finds one exception to this, and that is one of the several spears carried by Absha's followers in the contemporary painting at Beni Hassan.[20] But this is only a detail in the picture and may or may not be of value ; moreover there is no indication as to whether it was tanged or socketed. A better parallel is provided by the little copper weapons carried by the regiment of model spearmen from Asyut. The form of these may be said to be that of the Nubian spearhead, and they are rather earlier, dating as they do to the Heracleopolitan period, the 9th to 10th Dynasties. They are of course tanged in the usual way and not socketed.[21]

Inquiry from the Pennsylvania Museum, where the Nubian spearhead is now housed, elicits the extraordinary fact that it is not tanged, as would be normal, but socketed. If it really be of the 12th Dynasty, this would make it almost unique. The tang, not the socket, was the invariable method of hafting in the Nile Valley at that time, as it had been from the beginning and continued to be for many centuries after the 12th Dynasty. The present writer only knows of one exception, which is the socketed copper spearhead of earliest 1st Dynasty date from Tarkhan.[22]

Then, added to this, there is the material. Iron, as has just been shown, was as good as non-existent in Egypt at that period, as well as before and for long afterwards. Yet, if the spearhead really were of 12th Dynasty date, being nearly a foot long, it would be one of the largest iron objects of any date yet known from Egypt.

On top of all this there now comes a new difficulty. At my request the museum authorities have kindly had the metal analysed, and report that it contains no nickel. This means that the iron is not

[19] *Tools and Weapons*, p. 33, no. 144, and pl. XXXIX. This was written before the discovery of the Tell Asmar dagger.

[20] Newberry, *Beni Hasan*, I, pl. XXXI.

[21] Maspero in Grébaut, *Le musée égyptien*, I, pls. XXXIV, XXXV, and p. 32.

[22] Petrie, *Tarkhan* I *and Memphis* V, pp. 10, 21, grave 474, and pls. I, 12, IV, 6.

meteoric in origin, but smelted by man from the ore. Before the discovery of the Mesopotamian piece of smelted iron a thousand years older still this would have been considered conclusive evidence against the antiquity of the object. But such an opinion is now no longer tenable. Moreover, as will be seen on p. 14, by 1900 B.C., rather before the date of the Nubian spearhead, iron was being worked in Asia Minor on a sufficiently general scale for the manufacture of a throne and a sceptre. It should be noted that Absha's follower, who carries one of the only spears yet known to be the least like it, is from Palestine. It may, therefore, be that the Nubian weapon was an import from some very early iron-working nation in Asia. But, if so, it is curious that it should be the only one of its kind yet known, not only in the whole Nile Valley but also in all Hither Asia.

On the other hand this weapon, which is so difficult to explain as an antiquity, is identical in shape, socket, and material, with the ordinary spearhead used by the Baqqara (Dervishes) today all over the northern Sudan immediately south of Nubia.[23] It is, however, only about two-thirds the size. With that we must leave it; time will tell.

Though clearly not in general use, iron was, however, known and employed, though in ways we might hardly expect. We have already seen it used for decorative purposes, and the inscriptions show that it was also used magically. Egyptian thought soon realized that it was useless to present the deceased relative with every kind of food, if his mouth were sealed so that he could not eat. The problem was to open it, and clearly for such an undertaking the most tremendous power available would not be too much. The mourners, therefore, applied to the high priest of the thunderbolt-city Letopolis, who bore the proud title of Un-ra—'Opener of the Mouth'. He was fitted for this superhuman task by his possession of pieces of bia. Moreover, he was not unaided by the gods of his city, for, as the dead man is assured, the Four Children of Horus of Letopolis 'open thy mouth with their fingers of bia'. This was already recorded in writing in Pyramid times, *c.* 2600 B.C. The instruments used were plain blocks of bia, an adze of bia, chisels of bia, and, through a process of mythological reasoning, a model bull's leg of bia. Specimens of the adze, bull's leg, and chisels, have been found, and all are made of iron. Bia was, therefore, definitely iron, and was used by the gods and high priest of the Thunderbolt-city, Letopolis. More than this we are told

[23] See for instance E. S. Thomas, *Cat. Ethnograph. Mus. Royal Geogr. Soc. of Egypt* (Cairo, 1924), pl. 206, figs. c, e, and pp. 74, 75, 76, for the description.

that the instruments were made of ' bia which came forth out of Setesh (Seth, the Storm-god) '. Variant spellings show that the bia for opening the mouth was connected with the stars and was explosive in nature. Thus, the archaeological evidence shows that the bia was iron and the written record that its value came from its meteoric origin, in other words that it was the thunderbolt.

What more stupendous power could the priest find than the very thunderbolt itself, with which to rend, to blast, open that which was sealed in death ! Actually it was a work of supererogation to make the bia into splitting tools such as the adze or chisel. Being the thunderbolt, it had bursting power inherent in itself, as is shown by the use of mere blocks of bia. Being what it was, it is natural to find that in the skies the Storm-god, Seth, used bia with which to repel the evil serpent from the boat of the Sun-god. The Light-god, Horus, at times used bia against his enemies, and, when Seth had fallen into disfavour and had himself become evil, bia was even used against him.

In the Egyptian language the root *bia* has a number of meanings which superficially seem quite unrelated, but actually all arise from the original conception of the meteorite. Bia was intimately connected with Heaven ; its gates, walls and vault, were all made of bia, as were the heavenly throne and sceptre of the deceased Pharoah, and the ropes by which he could descend if he so desired. Even his bones and limbs became transformed into bia. And why not ? Primitive man well knew what the sky was made of, for had not pieces of it fallen for him to see ? Rain also falls from the sky and the sky is blue like water, so bia also means ' the waters of heaven '. ' Astonishment, marvel, valuable, weight, firmness ', are also meanings of bia and self-explained on the realization that it was of meteoric origin. ' To depart from ', another meaning, is well said of a star which suddenly begins to fly across the sky, or of a stone which leaves the air for this earth never to return. Perhaps most interesting of all for our present purpose is that bia also means ' coarse-grained red quartzite '. The connexion was no doubt provided by some meteorite of such a texture as FIG. 1, which is a conglomerate of stones embedded in a matrix of iron. This idea evidently lasted late in Egypt, for, writing of several thunderbolts of A.D. 1280, es Soyouti says ' and another [fell] at the foot of Gebel Aḥmar upon a stone, and burned it. That stone was taken and melted and several ounces of iron according to the Egyptian *rotl* were extracted from it '. Gebel Aḥmar is the famous landmark outside Cairo, the hill of coarse-grained red quartzite which has been

quarried from early historic times onwards. Es Soyouti's passage not only provides an example of the world-wide connexion between iron and the thunderbolt, but is also a relic of the local Egyptian connexion between a meteorite and coarse-grained red sandstone.

Iron retained its connexion with the storm-god, Seth, down to the end of Egyptian history. It has already been seen that about 2600 B.C. bia (iron) was said to have ' come forth out of Setesh (Seth) '. In the first century A.D. Plutarch records that the Egyptians called iron ' bone of Typhon (Seth) '. ' Bone ' is a curious expression in such a context, but is explained by a discovery which Professor Petrie made a few years ago. In excavating at Qau, a district sacred to Seth, he found quantities of heavy, black, fossilized, hippopotamus bones with a metallic look. The hippopotamus was sacred to Seth and some of the bones had been wrapped up in bandages and deposited in a tomb. They were evidently sacred things, and no doubt were supposed to be a kind of bia, and so gave rise to this superficially strange thought.

Thus, then, the existence of such a substance as iron had long been known to the Egyptians as a natural product. They obtained it from meteorites, called it *bia*, and practically the only use they had made of it was for magical or ornamental purposes.

It is a curious fact that it was not until the Egyptians were beginning to import manufactured iron that they added the epithet *ni-pet* ' of the sky ' to *bia*. The first use of the expanded term is apparently in the early 19th Dynasty, *c.* 1300 B.C., after which it becomes usual, displaces the older *bia*, and finally gives rise to the Coptic *benipe*. The assumption that the form *bia-ni-pet* was early and original has led to much inaccurate writing on the part of students.[24]

Knossos in Crete has produced a small lump of metal of Middle Minoan IIb age, *c.* 2000–1900 B.C. It is recorded as iron,[25] but Mr Forsdyke tells me that he cannot guarantee this for it has not been analysed.

By this time iron was beginning to be used in Asia in a practical manner. A tablet from Susa of the time of Hammurabi, *c.* 2200–1926 B.C., speaks of a helmet (or basin ?) of *parzillu*, spelt out *pa-ar-zi-li*. This appears to be the earliest occurrence yet known[26] of the word

[24] For the details about bia and meteorites see my article *Iron in Egypt* in *J.E.A.* XVIII, pp. 3–15.

[25] Forsdyke in *Annual of British School at Athens*, XXVIII, 279, 296, and pl. XXIII, 2.

[26] Scheil in *Rev. d'Assyriologie*, 1928, p. 42. This reference was kindly given me by Mr Gadd.

which, though the ordinary Semitic name for iron, is of non-Semitic and uncertain origin. On account of its ending *-ill* it has been thought to come from Asia Minor,[27] though with what authority I do not know. Roughly contemporary with this we have another important statement. In Asia Minor the archives of the Hittite Empire have been found at Boghaz-Keui, the capital city. The earliest of these documents yet translated is an account of the conquests of the king Anittash, who was reigning about 1925 B.C. Among other things he says, ' Then the man of Purushkhanda was commanded (?) with me. He brought me a throne of iron and a sceptre (?) of iron as prescribed '.[28] In both cases the word ' iron ' is written AN.BAR. This is only the earliest occurrence in a long list of mentions of iron in these documents, which reach down to the end of the Hittite Empire about 1200 B.C. One of these tablets is an inventory of objects in a number of temples. Here iron is the common metal, not the bronze to which one is accustomed in other lands of the Near East. The furniture of many of these temples included a statue of a standing man, one of a seated woman, and one of a bull, all generally of iron.[29] Iron is sometimes described as ' black ',[30] and as one of these passages speaks of ' black iron of heaven from the sky ',[31] it is legitimate to suppose that this epithet distinguished meteoric from smelted iron. Sayce has translated this in *Man*, 1921, no. 97. It is a list of materials and their places of origin, thus—' the gold they bring from the city of Bi . ., the silver from *kuzza* (the mines ?) . . . . . black iron of heaven from the sky, copper and bronze from the city of Alasiya and Mount Taggata '. It is clear, therefore, that though iron had long been smelted by man, the ancients were still quite willing to use such ready-made metal as came their way in the form of meteorites. In these archives there is also the famous letter saying ' As to the good iron about which thou hast written to me : There is no good iron in my " sealed " house in Kissuwadna. It is a bad (time) to make iron, but I have written (ordering) them to make good iron. So far they have not finished it. When they finish it, I will send it to thee. Behold, now, I am sending thee an iron dagger-blade. . . . which thou hast sent have no blades . . . [I have ordered blades] to be made, but so

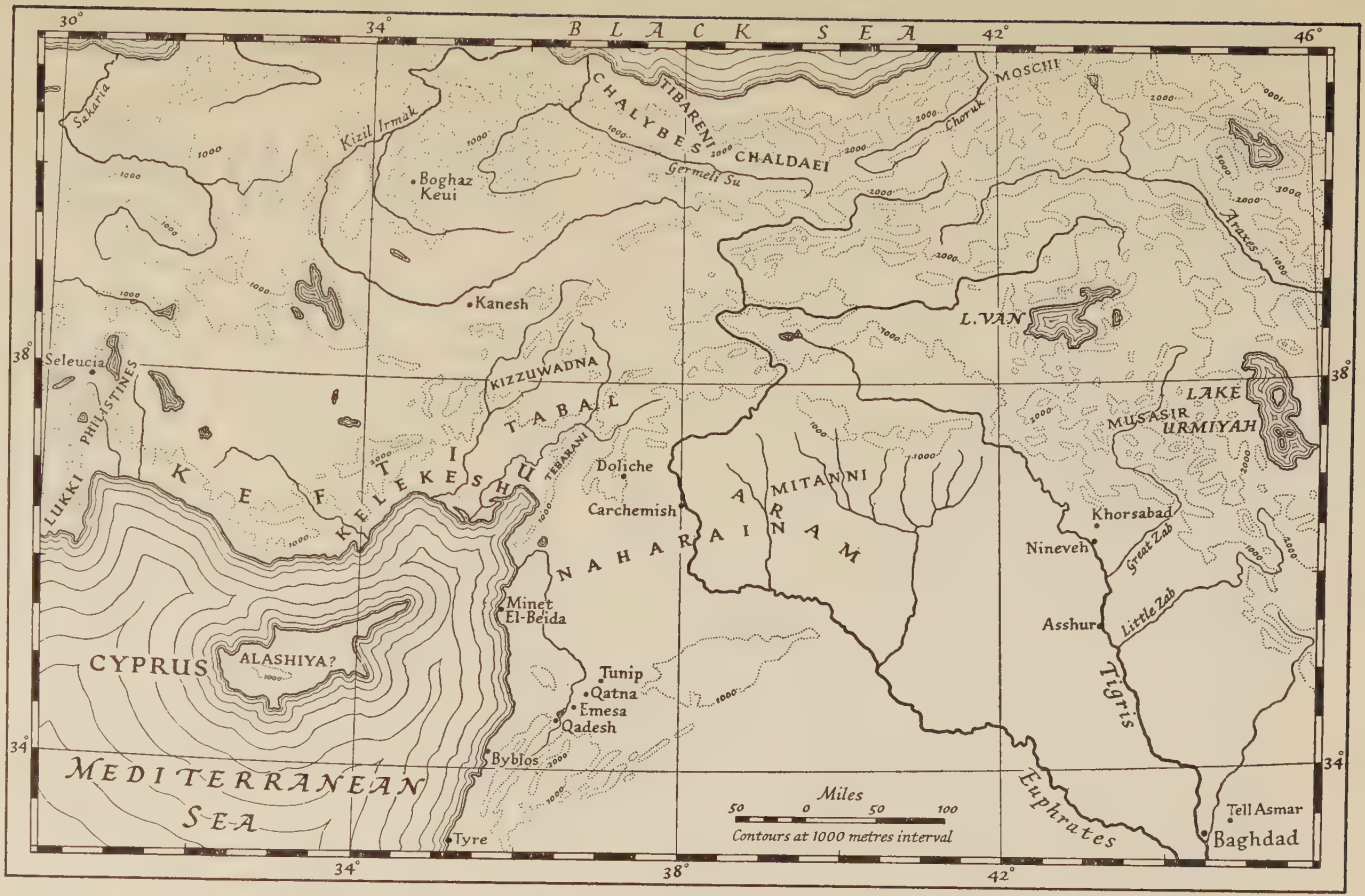
[27] Zimmern, *Akkadische Fremdwörter* (1917), p. 59.

[28] Hrozny in *Archiv. Orientalní*, 1929, I, 281, ll. 74, 75.

[29] Id., *Hethitische Texte*, passim (pubd. in O. Weber, *Boghazköi-Studien*, Heft 2).

[30] *Keilschrifturkunden aus Boghazköi*, XII, l, iii, 8; XII, 24, i, 8; XV, 9, iii, 3.

[31] *Keilschrifttexte aus Boghazköi*, IV, l, vs. 39. For this and the references in the previous note see Götze, *Kleinasien*, p. 112.


30°
34°
BLACK SEA
42°
46°
Sakaria
Kizil Irmak
Boghaz Keui
CHALYBES
TIBARENI
Germeli Su
CHALDAEI
MOSCHI
Choruk
Araxes
Kanesh
L. VAN
38°
Seleucia
PHILISTINES
KIZZUWADNA
TABAL
LAKE URMIYAH
MUSASIR
LUKKI
KEFTIU
KELEKESHU
TERQANI
Doliche
Carchemish
MITANNI
NAHARAINAM
Khorsabad
Nineveh
Great Zab
Little Zab
Asshur
Tigris
Minet El-Beida
CYPRUS
ALASHIYA?
Tunip
Qatna
Emesa
Qadesh
Byblos
Tyre
MEDITERRANEAN SEA
34°
Miles
50 0 50 100
Contours at 1000 metres interval
Euphrates
Tell Asmar
Baghdad
34°
38°
42°

far they have not finished them '.[32] If, as some think,[33] Kizzuwadna was the mountainous country in northeastern Cilicia which the Greeks and Romans called Cataonia, it would correspond with the land well-known to the Assyrians from the 9th century B.C. onwards as Tabal, and where Tebarani still lived in the first century B.C. (Cicero, *ad Fam.*, XV, 4). Just as Keftiu, the coastlands of southern Asia Minor, had been world-famous for metal-work in Tethmosy III's time, p. 17, so was Tabal 750 years later. When in 714 B.C. Sargon captured Musasir far away between lakes Van and Urmiyah, he specified among the vast booty ' cups of the land of Tabal with gold handles ' and ' incense burners of the land of Tabal '.[34] Mr Gadd tells me that the name is generally accepted as going back to the Sumerian *tibira* ' [copper-] smith '. It certainly seems to be old, for a mountain called Tibar is already mentioned by the time of Narâm-Sin, *c.* 2800 B.C. apparently near Aram, the far northwestern corner of Mesopotamia.[35] Genesis, IV, 22, would, therefore, be correct in making Tubal-Cain ' the instructer of every artificer in brass and iron ', for he represents the oldest land where we know stores of manufactured iron were kept and distributed to the world. About 600 B.C. Jeremiah (XV, 12) speaks of ' the northern iron ', and Ezekiel (XXVII, 12) says that Tyre imported iron from Tarshish, Tarsus in Cilicia. In verse 19 he names iron as an export from Javan, Ionia.

It will not be forgotten that later still, about 400 B.C., there was a famous nation of iron-workers living in another part of Asia Minor, away to the north on the Black Sea coast. They were the Chalybes, who gave their name, Χάλυψ, to a specially good quality of iron. In yet another part, in Pisidia, there was the city of Seleucia, to which the Greeks gave the epithet ἡ σιδηρᾶ. Thus, from the 20th century B.C. Asia Minor had commonly made and used iron, and for many centuries continued to be famous for its production. At least since *c.* 1460 B.C. it had disseminated the use of it, whether by trade or, as will be seen shortly, by the outpourings of its peoples and its tribes in the Age of the Great Migrations.

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[32] Luckenbill in *Amer. Journ. of Sem. Languages*, XXXVII, 206. This is the usual version ; Sayce's in ANTIQUITY, 1928, II, 227 does not seem to have won acceptance.

[33] Smith in *J.E.A.* VIII, 45–47, X, 108–115. Apparently the original reason for putting it in Pontus, as is commonly done, was that a thousand years later Xenophon found famous iron-workers, the Chalybes, living there.

[34] Thureau-Dangin, *La huitième campagne de Sargon*, p. 55, ll. 358, 361=p. 79, ll. 30, 38, 39.

[35] Dhorme in *Syria*, XIII, 37.

It is difficult to say how long the iron industry had been established in Asia Minor before we hear of it under Anittash, about 1925 B.C. His use of the words ' as prescribed ' suggests that it was of long standing, but to this there may be a difficulty. A mass of correspondence has been found at Kanesh which carries back our knowledge of the country perhaps even as far as 2200 B.C.[36] The city was the centre of an important road-system, and actually lies on the road from Boghaz Keui to the later iron countries of Kizzuwadna and Tabal, Yet there is no mention of iron in the correspondence either as AN.BAR or *parzillu*.[37] The explanation perhaps lies in the fact that these letters are concerned with trade to Mesopotamia, where, as we know archaeologically, there was no demand for iron. Hence, none would be exported there even if it were commonly used in Asia Minor.

Leaving Asia Minor we come to northern and central Syria. Here we first hear of iron in the list of the temple treasure at Mishrifé-Qatna. It was drawn up at some time before the conquests of Tethmosy (Thothmes) III, who reigned *c.* 1501–1447 B.C., and includes seven objects of iron, six of which were set in gold.[38] Year after year this Pharaoh led his victorious armies into this part of Asia, and in his seventeenth campaign, about 1460 B.C., he received from the land of Tinay ' a silver vessel of the work of Keftiu, together with vessels of iron (bia) '. (Breasted, *Ancient Records*, II, § 537). The precise situation of Tinay is at present unknown, but it was clearly somewhere near Mishrifé-Qatna and on the confines of southeastern Asia Minor. The campaign included such countries as Qadesh, Tunip and Naharain, all in central and northern Syria. Also Tinay exported ' a vessel of the work of Keftiu ', a land I believe to be Cilicia and the coastlands to the west,[39] and it has just been seen, p. 16, that this area was still famous for metal-work 750 years later. A couple of generations or so after Tinay had sent iron to Tethmosy, the neighbouring country of Mitanni across the Euphrates appears as an iron-producer. Its king, Dushratta, sent two truly royal presents to Egypt, the accompanying inventories of which were found in the archives of Egypt, now known as the Tell el Amarnah Letters. The first of these gifts was sent to

[36] But see Götze, *Kleinasien*, pp. 66 ff, who thinks it hardly began as early as that.

[37] Cf. id., *op. cit.*, p. 73. [38] Virolleaud in *Syria*, IX, 92, 96.

[39] Wainwright in *J.E.A.*, XVII, 26 ff ; *Journ. Hell. Studies*, LI, pp. 1 ff ; *Palestine Explor. Fund : Quarterly Statement*, 1931, pp. 203 ff. It has otherwise been thought to have been Crete, owing to lack of sufficient evidence and misunderstanding of what there was.

Amenhotep III (*c.* 1411–1375 B.C.) and included a very splendidly mounted ' dagger whose blade is of iron '.[40] There were also two ' hand-rings of iron overlaid with gold whose *mesukku* are set with beautiful lapis-lazuli ',[41] and ' a *miṭṭu* of iron overlaid with gold '.[42] Moreover, there were two other equally splendid daggers, the description of each stating ' whose blade is of *khabalkinu* ', a material of which ten other objects were also made.[43] The word is one of the unknown ones with which these letters abound, hence the usual translation ' steel ' is entirely guesswork at present. The other tablet gives another list of presents which Dushratta sent, probably to Akhenaton (*c.* 1375–1350 B.C.). It is damaged in many places so that the only iron he got seems to have been ' ten thin hand-rings of iron overlaid with gold ; thirty shekels of gold were used thereon '.[44] Akhenaton's successor, Tutankhamûn, about 1350 B.C., possessed a splendid dagger with a heavy iron blade (FIG. 5), two massive amulets of iron, and sixteen chisels with tiny iron blades.[45] Such frail instruments as these latter could have served no practical purpose, and to the present writer there can be no doubt that these are the the magical chisels of bia, with which the mouth of his mummy was opened. The dagger gives an idea of the magnificence of the weapons sent by Dushratta, and of course there is always the possibility that it is actually one of them inherited by Tutankhamûn from Amenhotep III. The manufacture of iron daggers was evidently a speciality of this part of the world, whether in Mitanni or Kizzuwadna. In view of the export of blades from this last country it is interesting to note that Tutankhamûn's looks as if it did not belong to its hilt.

At about the time of Dushratta and Amenhotep III, a very splendid burial of Late Minoan Age was made at Minet el Beida on the north Syrian coast. It produced a quantity of beads and rings, not only of gold and silver but also of iron.[46] Another indication of the importance of all this part of the world for the iron industry is provided by Jupiter Dolichenus. He was god of Doliche, a town actually situated on the road from Cataonia and Tabal to Mitanni. Somehow iron clearly figured there largely, for in the Roman age the phrase *ubi ferrum*

[40] Knudtzon, *Die el-Amarna-Tafeln*, I, p. 163, l. 16.

[41] Id., p. 163, ll. 1, 3. [42] Id., p. 159, l. 38.

[43] Id., p. 159, l. 32 ; p. 169, l. 7 ; p. 173, l. 49. [44] Id., p. 201 l. 28.

[45] Howard Carter, *The Tomb of Tut-ankh-amen*, II, pls. LXXVIIB, LXXXIIA, LXXXVIIB ; III, pl. XXVII. Mr Carter only considers the chisels to be samples of the new metal.

[46] Schaeffer in *Syria*, X, 292.

nascitur ' where iron is born ' is often added to the name of the god.[47] In view of all this it is perhaps remarkable that, in his northern campaigns, Tethmosy III did not receive more iron than the one lot from Tinay.

Pursuing our enquiry still further out from Asia Minor, we find that people from this sub-continent were already roaming over Syria at the time of the Tell el Amarnah correspondence, *c.* 1375 B.C. They were the Lukki (Lycians), who also about 1287 B.C. were among the Hittite allies defeated by Ramesses II at Qadesh in central Syria (Breasted, *Ancient Records* III, §§ 309, 312). At Qadesh there were also Kelekesh who can hardly be other than Cilicians, and Kezweden (Breasted, §§ 306, 309, 312, 349), that is to say people of Kizzuwadna, the land where the Hittite stores of iron were kept. The pictures show a few Philistines at Qadesh also, but it will be another hundred years before they come in force about 1190 B.C.[48] and there is much evidence that they also came from Asia Minor.[49]

With people from the homeland of iron-working roaming all over Syria, it is not surprising that this is the period at which iron became common in Palestine. At Gezer in central Palestine two large pieces of iron, measuring about four inches in width and one in thickness, were found together in a water passage which had been sealed up about 1500 or 1400 B.C.[50] By the time of the 19th Egyptian Dynasty, *c.* 1300–1200 B.C., iron had become the regular metal at Gerar in south Palestine, of which were manufactured knives, dagger-knives, spearheads, lance-heads, chisels, borers, hooks and sickles. A little later, say between 1200 and 1100 B.C., there were a number of very large iron implements, consisting of an iron pick originally weighing some six pounds, two large hoes, two plough irons, and a large adze. The furnaces were also found, showing that the iron was worked on the spot. The two earliest ones were datable to about 1175 and 1100 B.C. respectively.[51] At Megiddo in northern Palestine an iron foundry was discovered with quantities of iron ore, ash, scoriae, and numbers of manufactured iron implements, including ploughshares, hoes of various sorts, spearheads,

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[47] A. B. Cook, *Zeus*, I, 630 ff.

[48] Breasted, *Ancient Records*, IV, §§ 44, 64, 71, 81, 82, 129, 403. For all this see Wainwright in *Pal. Explor. Fund*: *Quart. Statement*, 1931, pp. 207, 212.

[49] *P.E.F.*: *Q.S.* 1931, pp. 203–16.

[50] R. A. S. Macalister, *The Excavation of Gezer*, II, pp. 269, 270 and fig. 417.

[51] Petrie, *Gerar*, pp. 14–16.

a small chisel, a sickle, knives, rings, and many nails, etc.[52] The date of this is uncertain, but in any case it is probably before 926 B.C.[53]

At Carchemish on the Euphrates in north Syria the Bronze Age ended with the destruction of the city at the end of the 13th century B.C. The conquerors were iron users and had affinities with the west and northwest—in other words with the Asia Minor which has figured so largely in this story.[54] By about 1100 B.C. a cemetery of the full Iron Age was in process of formation there.[55]

At this time the Assyrian king Tiglath-Pileser I, *c.* 1115 B.C., states that he killed four wild bulls, using among other weapons his ' iron (*parzilli*) arrow (?) '[56]

Og's bedstead of iron (Deuteronomy, III, 11) is well-known, and the ' chariots of iron ' of the inhabitants of Beth-shean, Jezreel (Joshua, XVII, 16) and the Judaean Plain (Judges, I, 19) struck terror into the Hebrews. Later, about 1100 B.C. Sisera's ' nine hundred chariots of iron ' (Judges IV, 3) are famous, as is Goliath's spearhead of ' six hundred shekels of iron ' (I Samuel, XVII, 7) at something before 1000 B.C. What is perhaps not so well-known is that Barzillai, the name of David's friend, only means the man ' of iron ' (II Samuel, XIX, 31 ff.)

After this iron becomes a commonplace. For example in Assyria Asshurnazirpal (884–858 B.C.) likens the peaks of the mountains to the ' point of an iron dagger ',[57] used iron picks for road-making [58] and carried off iron in quantities from many cities and lands.[59] Shalmaneser III (859–824 B.C.) did the same and used the same simile,[60] and Adad-nirari IV (810–781 B.C.) carried off iron also.[61] Of the various builders of the Ishtar temple at Asshur, Shalmaneser III was the first to include iron in his foundation deposits.[62] Tiglath-Pileser III (745–727 B.C.) put ' chains of iron ' on a prisoner, as did Sargon (722–705 B.C.) and Sennacherib (704–682 B.C.)[63] Similarly, when Gyges of Lydia sent

[52] Schumacher, *Tell el-Mutesellim* I, pp. 130–2, figs. 192–4 and pl. XLII.

[53] Watzinger, *Tell el-Mutesellim*, II, pp. 80, 81.

[54] Woolley, *Carchemish*, II, pp. 48, 49 ; Id. in *L.A.A.A.* VI, 98.

[55] Id., in *op. cit.*, VI, especially pp. 88, 98.

[56] E. Schrader, *Keilinschriftliche Bibliothek*, I, p. 39. Future reference to this work will be given as Schrader.

[57] Schrader, pp. 61, 77. [58] Ibid., p. 83. [59] Ibid., pp. 67, 107 twice.

[60] Ibid., pp. 145, 147, 155, 161, 163 twice. [61] Ibid., p. 191.

[62] Andrae, *Die jüngeren Ischtar-Tempel in Assur*, p. 57.

[63] Schrader, II, pp. 15, 67, 103, cf. p. 93 ; Winckler, *Die Keilschrifttexte Sargons*, pp. 33, 83, 87, 117.

the Cimmerian chiefs to Asshurbanipal, he did so ' in chains, iron fetters and iron bands '.[64] Sargon mentions iron among the offerings he made in the temples at Babylon, and among the foundation deposits for his new palace.[65] The foundation deposits have been found scattered in the layer of sand under the walls, and among them were a number of little ' barils ' of much oxydized iron.[66] Iron indeed was nothing accounted of in his days, for one of the many store-chambers of this palace at Khorsabad was found to contain nothing but ingots and tools of iron, sorted and stacked according to class. The total weight was estimated at 150 tons and more. One of the stacks formed a mass 5.80 × 1.40 × 2.60 metres. Elsewhere were piled pickaxes, hoes, hammers, ploughshares, shoes for door pivots, etc., etc. There was also a mass of grappling irons, which consisted of hooks and chains, which were rather more than a metre in length, and weighed nearly 50 lbs. apiece. The iron was scarcely tarnished and was of good clean metal which rang with a sharp clear note when struck. The smith of the expedition, a native, used much of it and declared it to be in no way inferior to the Persian, which was the best modern iron of which he knew. The villagers fitted one of the ploughshares to a plough of their own where it gave complete satisfaction.[67] Iron helmets and quantities of iron scales from coats of mail, both sometimes inlaid with copper, were found at Nineveh in the same room as objects bearing Sargon's name.[68]

On the confines of this area we have Cyprus, Greece and the Aegean on the west, and Egypt to the south. Here progress was much the same though rather slower, and in Egypt the change was not accomplished till Roman times. In Greek lands the oldest iron artifacts yet known are finger-rings of Late Minoan I date *c.* 1500 B.C.[69], though the passage from bronze to iron did not begin until about 1100 B.C.[70] In Cyprus a few ornaments of iron have been occasionally found in the Late Bronze Age. It is about 1200 B.C., at the opening of the Iron Age,

[64] Schrader, II, 175. [65] Schrader, pp. 73, 77

[66] Pillet, *Khorsabad*, p. 80, contents of box 4.

[67] V. Place, *Ninive et l'Assyrie* I, pp. 84–89, pls. 70, 71. Some of the ingots are now in the Louvre at Paris, where I obtained some fragments. Prof. Desch's analysis showed them to be smelted from the ore.

[68] Layard, *Nineveh and its Remains*, 1849, I, 341. ' The Khorsabad king ', pp. 342, 343, is Sargon. There had also been bronze armour there.

[69] Forsdyke in *Ann. Brit. School at Athens*, XXVIII, 296.

[70] *Cambridge Ancient History*, II, 447.

that iron swords begin to come into use, but they do not displace the bronze ones until about 1000 B.C. and later.[71] Egypt still keeps on in the Bronze Age. After the earlier iron recorded above, the only pieces are a stud from a box and a finger-ring which appear to be of 18th Dynasty date, and a pin of this date is known from Abydos. An iron sickle was found under a sphinx of the late 18th or early 19th Dynasty, and thus would be of the time of Tutankhamûn or shortly afterwards. Then there is an iron bracelet of the 19th or 20th Dynasties, and a halbert which is probably of the age of Ramesses III (1198–1167 B.C.) This king records that he made a statue of a god out of iron, *bia-ni-pet*. Three iron pins, each $2\frac{3}{8}$ inches (6 cms.) long were used for fastening a coffin of the 21st Dynasty (1090–945 B.C.) and several knives are known of Ramesside age or later. A group of iron bracelets dates to about the 22nd Dynasty (945–745 B.C.) as does a short bar of wrought iron and the scraps of iron found with it.[72] There is a small figure of Horus cut out of a flat sheet of iron.[73] It is undated but is no doubt quite late. Asshurbanipal records the booty he carried off when he sacked Thebes in 663 B.C. The absence of iron from the list[74] is in noticeable contrast to the harvests that had been garnered by the Assyrians for 200 years from the cities of Syria and Palestine. In 667 B.C. he had sent Necho I back to Egypt as a tributary king, including in the insignia ' an iron sword for his belt '.[75] It is, therefore, significant that the earliest group of iron implements in Egypt is a set of tools of non-Egyptian type. It was found at Thebes with a bronze helmet of a well-known Assyrian shape.[76] They must, therefore, have been left behind in one of Asshurbanipal's two occupations of Thebes in 667 and 663 B.C.[77] About 654 B.C. Psametik gained his independence of Assyria and hegemony over the local dynasts with the help of ' Greek ' mercenaries. They were really Lydians sent by Gyges[78] and Ionians and Carians (Herodotus, II, 152, 154). With them Asia Minor once again appears on the scene, and the excavation of their cities of Naukratis and Daphnae in the Egyptian Delta has shown them to be in the full

[71] Myres, *The Cesnola Collection*: *Antiquities from Cyprus*, pp. XXXI–XXXIII.
[72] For all these see *J.E.A.*, XVIII, pp. 14, 15.
[73] Wiedemann in *Proc. Soc. Bibl. Archy.*, 1914, p. 58, no. 22 and pl. V.
[74] Schrader, II, pp. 167, 169.
[75] *Op. cit.*, p. 167.
[76] Petrie, *Six Temples at Thebes*, pl. XXI and pp. 18, 19.
[77] *Camb. Anc. Hist.*, III, 283, 285.
[78] Schrader, II, p. 177, ll. 114, 115.

Iron Age. An iron sword, which might well be before this date, was found at Abydos,[79] and by the end of the dynasty iron was becoming sufficiently common for it to begin to appear among the foundation deposits. Haa-ab-ra, the Hophra of the Bible and the Apries of the Greeks (589–570 B.C.), included it among his at Abydos,[80] though neither Psametik I before him, nor Amasis after him (570–526 B.C.) did so in their deposits at Defennah and Nebeshah respectively.[81]

From these facts the following conclusions emerge. Iron was originally known through its occurrence in meteorites. As meteorites are not, even yet, fully distinguished from thunderbolts, iron was, and in many places still is, considered a dangerous substance. Its supposed explosive powers were used magically in Egypt for some thousands of years before smelted iron was at all well-known. During these ages it had been called *bia*, and curiously enough it was not until smelted iron was being imported that in the 14th century the addition *ni-pet* 'of the sky' was added. Although an occasional object of iron may be found, it is not until after the 15th century that one may expect to meet with iron here and there in Egypt. Actually Egypt was the last country of the Near East to enter the Iron Age, and then only under an intensification of northern influences. While Mesopotamia had known meteoric iron from before 3000 B.C. it also knew smelted iron as early as some time before 2800 B.C. But until 1100 B.C. iron was evidently as rare there as in Egypt. From the 20th century onwards Asia Minor had used iron regularly, some of it apparently meteoric, and here lived the important iron-workers of Kizzuwadna and Tabal-Tubal, as well as the Chalybes, and the inhabitants of the city called by the Greeks ἡ σιδηρᾶ. The name of the second of these nations is to be found in the Sumerian *tibira* 'a smith'; while the third gave its name to a good quality iron in Greek; and, as some think, Asia Minor provided the Semites with their word for iron, *parzillu*, *barzel*. From the 15th century onwards Asia Minor, north Syria, and northwest Mesopotamia had exported iron objects, largely daggers and dagger-blades, though iron was still much used in jewellery. In this district the storm-god of Doliche was somehow connected with iron. It was clearly the

[79] Petrie, *Abydos*, II, pl. XXII, 12 and p. 33.

[80] Id., *op. cit.*, I, pl. LXX, 9 and p. 32.

[81] Id., *Defenneh*, pl. XXII and p. 55; *Nebesheh*, pl. V and pp. 14, 15; both are bound with *Tanis* II.

wanderings of the Asianic tribes in the 14th and 13th centuries that brought the Iron Age to Palestine. By 1100 B.C. Assyria, Carchemish, Cyprus, and Greece and the Aegean, were entering the Iron Age, and by the 8th century Sargon of Assyria had laid up in his storehouses 150 tons or so of good iron. His ingots were of the curious shape which 200 years later was entering Germany and France with the La Tène period of the Iron Age.[82] Evidently the knowledge of iron-working did not radiate only to the south.

[82] Déchelette, *Manuel d'archéologie : premier age du fer*, p. 546, fig. 226.

Pits and Pit-dwellings in Southeast Europe*

by Werner Buttler

In connexion with the publication of the report on the neolithic settlement at Köln-Lindenthal I undertook, in the autumn of 1933, with the support of the Notgemeinschaft der deutschen Wissenschaft, two months' exploration in Hungary, Rumania and Jugoslavia. Apart from museum researches in prehistory the chief object of this journey was to study the building methods of the primitive peasant cultures in these countries. In compiling the report on the 'band keramik' settlement at Köln-Lindenthal it was found necessary, in order to elucidate many of the finds, to compare them with ethnographic material from settlements peopled by primitive peasants in modern Europe. This method proved no less helpful than when employed earlier by Oelmann, Menghin[1] and others in dealing with other prehistoric studies. Prehistoric cultures invariably comprise objects the use of which can only be ascertained by comparison with cognate ethnographic or cultural material. For, owing to the conservative character of the peasant, modern primitive peasant cultures have retained certain structures and institutions which are derived, without a doubt, from archaic, even neolithic prototypes. Comparison of modern material with our prehistoric finds by no means postulates a direct historic connexion between the two, especially when the objects compared are widely separated in place, culture, nationality and race. Rather is ethnography called in to furnish a sound basis for assumptions about our finds by relating them to similar phenomena of modern times.

The excavation of prehistoric sites has revealed a number of architectural and other structures hollowed out in the ground. The object of my journey was to find modern parallels to these structures, in

* From the *Bonner Jahrbücher*, cxxxix, 134–44, Darmstadt, 1934, by permission of the Editor.

[1] F. Oelmann, 'Hausurnen oder Speicherurnen?' *Bonn. Jahrb.* 134, p. 1 ff.; 'Das Speichermodell von Melos', *Athen. Mittl.* l, p. 19 ff.; Menghin, *Weltgeschichte der Steinzeit.* Vienna, 1930.

which work I was fortunate in receiving encouragement and help from colleagues in the museums of ethnology and prehistory in all the countries traversed. The various structures of this nature described below should present many features of interest to the student of prehistory. As in making my records I endeavoured to interpret all that I saw in the light of prehistory and our own excavations, I will point out such features as I come to them.

1. Clay- and Rubbish-pits

Szemet-Gödör, near Debreczin, Hungary, is a settlement of gypsies and poor day-labourers, mostly living in pit-dwellings whose walls are of stamped clay dug on the spot next to the huts. The clay-pit is worked as long as the particular owner needs clay, and acquires a quite irregular shape. The pit shown in FIG. 1a had a maximum depth of 80 cm. and at one side its wall was undercut. When the necessity for digging the clay ceases such a pit serves as a rubbish-hole and gets gradually filled in.

The interest of this pit to a prehistorian lies in its close resemblance to an irregularly shaped neolithic pit-dwelling with its undercut walls. Many of our neolithic ' dwellings ' were possibly nothing but clay-pits.

Throughout the Balkans we find irregular clay-pits of this type. In Rumania the wall is often deeply undercut,[2] the upper soil and clay strata being unsuitable for building purposes. Peasants often get killed by the sudden collapse of the upper soil.

At Szemet-Gödör I observed pits for kitchen refuse in front of every house ; but they were also used for throwing building rubbish in after the building or alteration of a house. They were either square or roughly circular. The pit illustrated (FIG. 1b) was 2.30 m. long by 0.80 m. deep. When such a pit is full, which according to the inhabitants takes from five to twelve months, a new one is dug close by if there is no abandoned clay-pit convenient. The rubbish-pit shown is very similar in shape to the neolithic pits.

In the case of one pit-dwelling (FIG. 9 B′) the oval rubbish-pit was placed directly in front of the door, a proof that convenience appeals more to some primitive folk than hygiene and fresh air.

2. Storage-pits

The practice of storage in pits lying apart from the dwelling is still practised today by the simple peasants of southeast Europe. Even

[2] Personal communication from Dr Nestor of Bucharest.

in villages where the farms have long had modern cellars under their houses, the poorer peasants keep their stores in the old way. These pits should not be confused with the *Mieten*[3] for beet and the like employed in Germany, for in contrast to these they have a long tradition behind them and are always covered or have a hut-like roof.

According to the goods stored we may distinguish : grain-pits, pits for root vegetables, pits for fruit and green vegetables.

In Banat a hive-shaped grain-pit (FIG. 1c : model in the Ethnographic Museum, Belgrade) measures 0.50 m. across the top, 2.30 m.

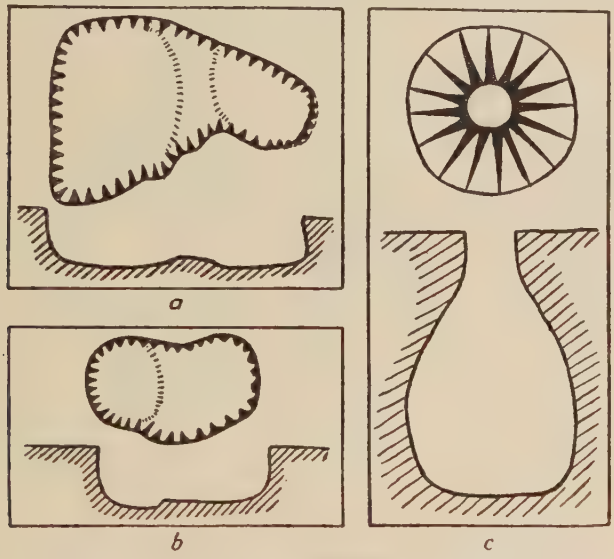

FIG. 1. *a*, CLAY-PIT; *b*, RUBBISH-PIT; *c*, GRAIN-PIT

across the base and 3.30 m. in depth. Grain-pits of this character were customary in Hungary (the Theiss plain), Banat and Wallachia until a few decades ago. The walls were usually hardened by fire. Over the entrance-hole, through which the interior was reached by a ladder or climbing-plank, was a protective covering in the shape of a wooden (*cf.* FIG. 3) or stone[4] superstructure ; or, as in other instances, the opening was closed with a wooden slab, as in the pit shown in FIG. 2. Nowadays grain-pits are little used except in certain primitive districts

[3] *Miete*, stack : the word originally denoted a heap of beet or the like stacked in a pit ; later it was used for the pit.

[4] Photos in the Ethnographic Museum, Budapest.

of Rumania (the Dobrudja), where they are often made in the house (pit-dwelling, *bordeu*), under the bed.[5]

Exactly similar constructions dating from prehistoric times, and in part undoubtedly used as storage-pits,[6] have been found in the Danube countries. They resemble in principle the conical pits so frequently found in the La Tène culture of Central Europe, which we may therefore also assume to have been used as storage-pits.

Isolated cases of a thoroughly primitive storage-pit used by poor folk occur at Kótaj, province of Szabolcs, in northeast Hungary. FIG. 2 shows a round pit, 1.5 m. deep, surmounted by a contrivance of crossed sticks covered with straw and mud. The pit can only be reached

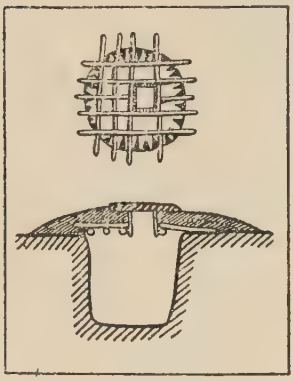

FIG. 2. PRIMITIVE STORAGE-PIT

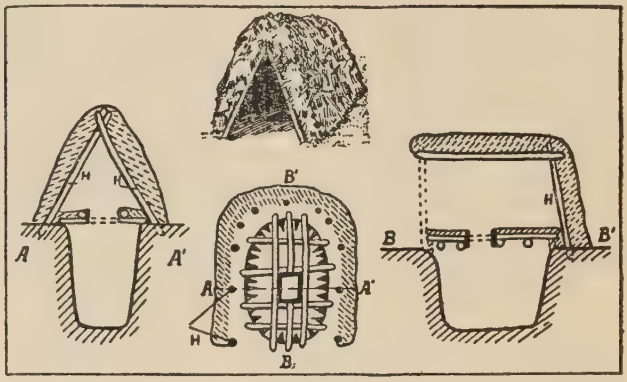

FIG. 3. GRAIN-PIT

through a square hole in this contrivance, which is lined with boards and can be closed by means of a large stone. At nearly all the prehistoric sites excavated have been found deep hollows of this kind, most of which may well be regarded as storage-pits. This Hungarian example shows clearly how over such a storage-pit quite a simple roof-cover might be set up.

FIG. 3 shows an advance upon the above contrivance. Here a pit

[5] Personal communication from Professor Vuia of Klausenburg (Kluj).

[6] *Cf.* J. Söregi, *Das Problem der in die Erde gegrabenen bienenkorbförmigen Gruben.* Debreczin, 1932. Söregi's identification of the conical pits as clay-pits connected with pot-making cannot be accepted as of universal validity. His main arguments against the theory that they were storage-pits—that the walls of modern storage-pits are always fired and that conical- or hive-shaped pits are found only in clay soil—are by no means always applicable.

deeper than it is wide is covered in a similar manner to that in FIG. 2 ; but for additional protection there is erected over the whole a $1\frac{1}{2}$ m. high sloping roof consisting of wooden stakes covered with straw. It is open in front and the pit is accessible from the surface.

In the Rumanian village of Vältcele I saw potato storage-pits with the entrance-hole in the side. The rectangular pit shown in FIG. 4 is cut in sloping ground and has at one side in front a shallow ramp which serves for entry. The fruit kept in the pit is removed by hand through this side-opening in a basket or other receptacle. The superstructure consists of two strong crossbeams (Q) forming an abutment to a bed of sticks packed with straw and mud.

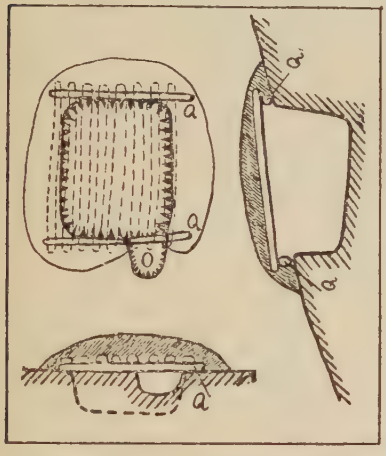

FIG. 4. POTATO STORAGE-PIT

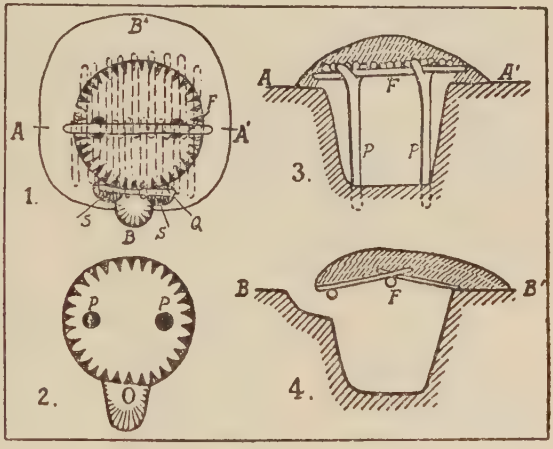

FIG. 5. POTATO STORAGE-PITS

The storage pit shown in FIG. 5 and in no. 6 in the PLATE follows a similar principle. Although situated on level ground it has the same sort of side-opening as that in FIG. 4. The cover, consisting of rows of sticks heaped with straw and mud, is borne on a transverse ridge-piece (F) resting on two posts (P) forked at the tops. At each side of the opening lies a stone (S), across which rests a beam as support for a cover.

These storage-pits with side-openings have a very long tradition behind them. Constructions with a plan closely resembling that of FIG. 5 (2) were found in neolithic ' band keramik ' settlements (Köln-Lindenthal,[7] Stützheim in Alsace,[8] Herkheim near Nördlingen[9]).

[7] Buttler and Haberey, *Die bandkeramische Ansiedlung von Köln-Lindenthal*, p. 21 (5)
[8] *Anz. f. els. Alt.*, 1910, 5, p. 217 ff. [9] *Germania*, 1923, VIII, 82, fig. 1 (Kb).

Professor Oelmann has drawn my attention to the storage-pits of this type found also in excavations of later date (Là Tène settlements at the Basel gas-works and at Graurheindorf near Bonn[10]). Post-holes on the floors of prehistoric storage-pits are likewise not unknown (Köln-Lindenthal,[11] Plaidt, [12] Praunheim[13]).

Another type of potato storage-pit with side-entrance is shown in FIG. 6 and no. 5 in the PLATE. This type occurs almost everywhere in Hungary. Over the long rectangular pit (*c.* 1½ m. in length) rises a hut-like superstructure made of sticks packed with straw and mud.

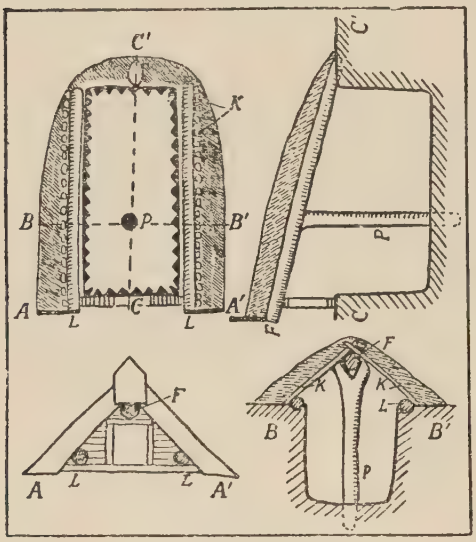

FIG. 6. POTATO STORAGE-PIT

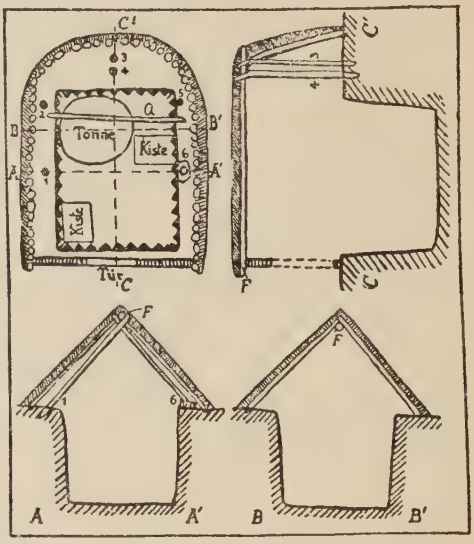

FIG. 7. MODERN STORAGE-PIT

The front opening is in the low gable, and at the back the superstructure slopes down to ground level. The gable-end, consisting in this instance of boards—though gable-ends of stamped clay or unbaked brick have been found—supports a ridge-pole (F), the back end of which rests on the surface soil. On either side of this pole a number of closely placed sticks (K) run to ground-level behind two poles placed one against each side of the ridge-pole. In the structure illustrated the

[10] *Anz. f. schweiz. Alt.*, 1913, XV, p. 1 ff, fig. 3, pit 32 ; *Bonn. Jahrb.*, 139, p. 211.
[11] *Op. cit.*, pl. 21 (7).
[12] *Bonn. Jahrb.*, 122, plan, pl. XXIV, pits 67, 77.
[13] *Schriften des Hist. Mus. d. Stadt Frankfurt/M*, II, p. 55, fig. 1, pit 7.

ridge-piece rests on a gable-pole (P), but storage-pits of this type exist that have no such support.

FIG. 7 shows a complicated type of modern storage-pit at Baňeasa near Bucharest. Over a rectangular pit 1½ m. deep with almost vertical sides stands a low gabled hut with an apsidal ground plan, the triangular space made by the gable forming a large door. The ridge-pole (F) rests in front on the gable-beams, at the back on the two closely placed forked posts 3 and 4, and is also supported by the posts 1–6 and 2–5, of which 1, 2 and 5 are staked in the ground while 6 rests on a flat stone. To this framework are then added a close row of wooden sticks only lightly staked in the ground and daubed on the outside with clay.

This structure will interest the prehistorian for two reasons. Firstly, it displays, as does the previous Hungarian pit, a juxtaposition of posts driven right into the ground with others that only rest on the surface. At any subsequent excavation the excavator would find only the former, nor would he find post 6, as he would naturally expect to, since it was not staked in the soil. Why this post rests on a stone is not at all clear ; but at least this fact explains why intensive search on prehistoric house-sites for certain posts is often fruitless.

The use to which this type of storage-pit is put is also interesting. In Wallachia potatoes are not grown on a large scale as they are in Hungary, and these pits were used in Wallachia to store various other products such as fruit, green and root vegetables. In this particular storage-pit one box held fruit, another potatoes, a barrel contained compressed coal and the free floor space was filled by gourds, while the walls and a pole (Q), placed across the pit, were hung with paprika and onions.

Here, then, we have proof that the use of storage-pits did not follow the introduction of the potato but that they have come down from olden times. Such pits (Serbian : *trap*) occur in Serbia too, in districts foreign to the cultivation of the potato, where they are used to keep apples and other fruit in straw through the winter.[14]

3. PIT-DWELLINGS

The custom of sinking the ground floor of dwellings into the soil may be traced to the very earliest days in the evolution of architecture.[15] In nearly all prehistoric periods and culture-circles dwellings of this

[14] Personal communication from Dr Petrovic, Ethnographic Museum, Belgrade.

[15] *Cf.* Oelmann, *Haus und Hof im Altertum*, 1927, I, 11.

kind occur ; they were in use in Germany down to the Early Middle Ages, even to the beginning of modern times.[16] Today such dwellings are rare in Europe, but they are found in Hungary and the Balkans,[17] as well as in Asia[18] and North America[19] and occasionally in Africa.[20]

A few remains of primitive peasant cultures still exist quite near the Hungarian capital. The pit-dwelling (Hungarian : *földház*, Rumanian : *bordeu*) has not entirely died out but is used by Hungarian melon-growers as a field-shelter, especially during the working season. With the rapid advance of civilization these structures are fast disappearing. For instance, four years ago the village of Rákosszaba twenty kilometres east of Budapest, consisted (according to Dr Ebner of the Ethnographic Museum in this city) entirely of pit-dwellings. When Dr Ebner took me to the place in 1933 we saw only the most modern week-end bungalows. After hours of search we at last came across a few pit-dwellings, one of which was as follows (FIG. 8) : the floor of a hut, with an inside measurement of 5.20 m. long (*i.e.* from gable to gable) by 4.00 m. wide, is sunk 70 cm. into the ground. The gable-ends are of crude brick and the sloping roof, which rests on the ground, consists of straw fascines and mud plaster and is supported on inclined poles (st) staked lightly in the soil and bound together in a line with the gable-top. No. 2 in the PLATE shows the framework of such a hut (photo in the Ethnographic Museum, Budapest).

Closely set cross-rafters (Q) give the necessary support to the straw fascines tied to them. FIG. 8 shows the gable-end, pierced by a door (T) barely the height of a man, through which the interior is reached by a

[16] *Germania*, 1934, XVIII, 144 ; *Westdeutscher Beobachter*, 1934, no. 436 (26 Sept.).

[17] Hungary : Ebner, *Mag. Ném. Múz. Népr. Taranak Ért.*, 1912, VIII, 165 ; 1929, XXI, 4 ff. Rumania : Plopsor, *Bull. Soc. Reg. Române de Geogr. in Bucarești*, 1922, XLI, 124 ff ; Jäneke, *Das rumänische Bauern- und Bojarenhaus*, *Bucharest*, 1918 ; Jakobi, *Kastell Zugmantel* (Obergerm.-rhätische Limes no. 8), p. 23 ff, figs. 1–3. Albania : Haberland, *Kulturwiss. Beitr. z. Völkerkunde von Montenegro, Albanien und Serbien.* Vienna, 1917, p. 56 ff. Poland : Griesebach, *Das polnische Bauernhaus*, p. 11, fig. 3. France : Viollet-le-Duc, *Dictionnaire de l'architecture française*, VI, p. 293 ff. North-east Europe : Hellwald, *Haus und Hof*, 1888, p. 66 ff ; Bielenstein, *Holzbauten und Holzgeräte der Letten*, p. 56 ff ; Martha Bielenstein, *Mannus*, 1932, 24, p. 231 ff.

[18] Sirelius, *Finnisch-ugrische Forschungen*, 1907, VII, 106 ff, fig. 74 ; Ratzel, *Völkerkunde*, II, fig. p. 765 ; Buschan, *Illustr. Völkerkunde* (Asien), pp. 298, 350 ; Schurz *Urgeschichte der Kultur*, p. 422.

[19] Sarfert, *Archiv. f. Anthr.*, N.F. VII, p. 130 ff ; *Anthropos*, 1909, VI, 590, fig. 17, 18.

[20] Schachtzabel, Suppl. to vol. II of *Internat. Arch. f. Ethn.*, p. 58 (Temben). At Homs in Tripolis I measured in 1932 a rectangular Arab pit-dwelling sunk ¾ m. into the ground. It resembled the pit-stable in fig. 10 described pp. 34–35.

1. PIT-DWELLING, RUMANIA, AFTER A FRENCH DRAWING

2. FRAME-WORK OF HUT, RAKOSSZABA, HUNGARY

3. ROOFING OF PIT-DWELLING

4. SHELTER BUILT IN A HUNGARIAN VINEYARD

5. POTATO STORAGE-PIT, NAGYTARESA, HUNGARY

6. POTATO STORAGE-PIT, VALTCELE, RUMANIA

facing p. 32

step-ladder. At one side of the door is a small window, in the centre of the opposite wall a larger one.

A pit-dwelling at Szemet-Gödör near Debreczin (Hungary) shows a different type of dwelling (FIG. 9), with a flat roof. The walls of this cabin, with an inside measurement of only 2 m. by 3.2 m., are of stamped clay ; the floor is sunk 0.75 m. in the ground and is reached through the single aperture in the room—the door in the front wall—

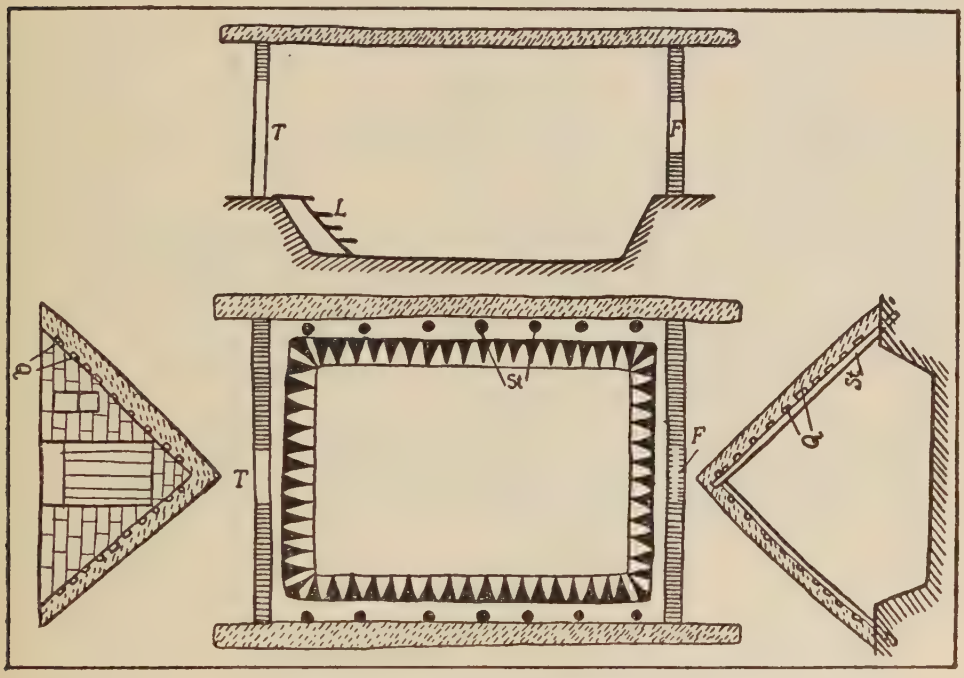

FIG. 8. PIT-DWELLING, RÁKOSSZABA

by a short flight of steps cut out of the natural clay. At the back, opposite the door, is a bank of earth 40 cm. high, probably the former bed. The roof, which slopes down gently to the back, consists of straw-covered planks resting on the walls and also supported by the main post (3) carrying a transverse beam (9). The only other posts in the hut are the two doorposts 1 and 2, and another post 4, which was probably inserted later to prop up a damaged place in the roof. Right in front of the door is an oval rubbish-pit 70 cm. deep.

This dwelling represents an interesting mixed type coming between the clay-house and the post-house. Post 3 is noticeable as not being centrally placed. One would expect to find a second roof-support, but there is no trace of such. The asymmetrical placing of 3 is probably due to the length of the roofing planks. This plan shows, therefore, how in certain cases posts may be used in a building irrespective of any rule. If the plan represented a prehistoric find the absence of a second support-post would puzzle the excavator.

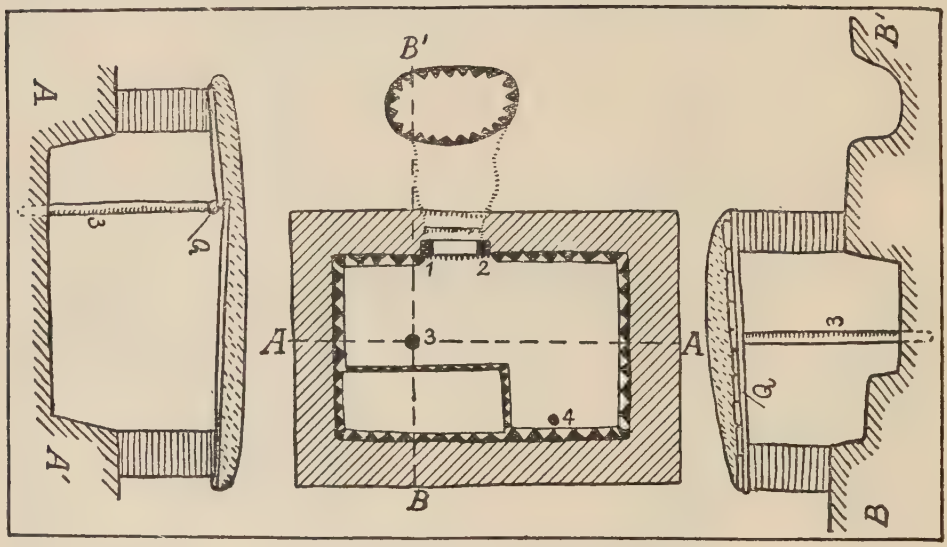

FIG. 9. PIT-DWELLING AT SZEMET-GÖDOR

4. PIT-STABLES (Hungarian : *földól*, Rumanian : *burgye*)

In many districts where in domestic architecture proper the sunken floor has been given up, the early form of the pit-dwelling is retained for stables ; indeed, much earlier forms are used for them than for the houses, for occasionally round structures are found so employed.[21]

The plan of the pit-stable at Kótaj, province of Szabolcs, Hungary, in FIG. 10 shows, in contrast to the constructions previously described, a side-entrance leading up from the sunk floor to the surface of the soil. The ground plan of both floor area and walls is quadrilateral with fully rounded corners. At each of the narrow sides of the 4.20 m by 2.40 m.

[21] Ebner, *op. cit.*, 1929, XXI, 4, fig. 5.

pit there are fixed in the soil two strong forked posts (1 and 2) which carry the ridge-beam (F). Towards these incline rafter-posts (St) quite lightly fixed in the soil, which rest upon two beams (L) set in the ground along the long sides of the hut. The entrance, commencing with two steps, then continuing in a gentle slope to the floor, is protected by a low porch springing from the main roof, and is closed at floor level

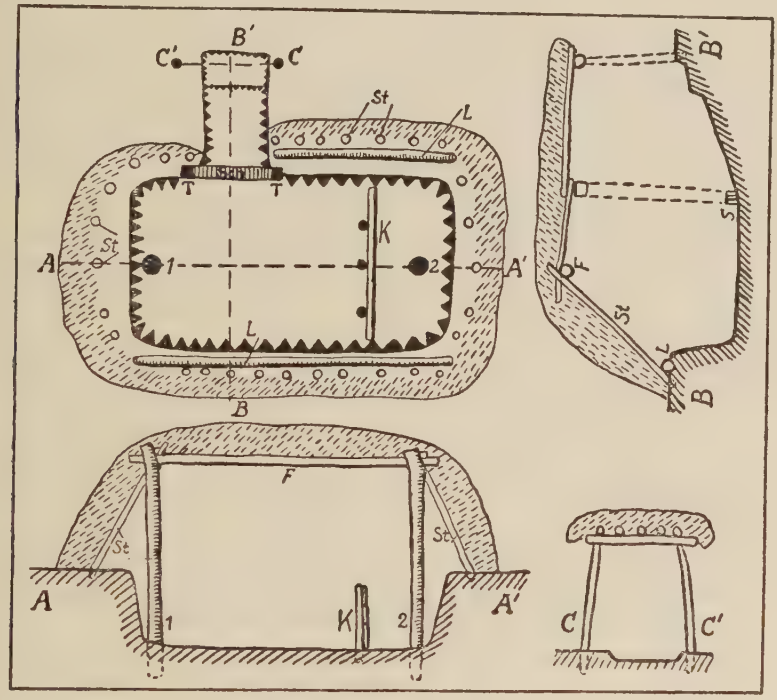

Fig. 10. PIT-STABLE AT KÓTAJ

by a wooden door with two strong doorposts (T) let into a wooden sill (S). The planking (K) erected against three short props separates the cattle-place from the narrow manger in which stands post 2.

The whole roof-surface is warmly protected by a thick padding of straw, earth and dung. This kind of roofing is not confined to stables but is common to all simple pit-dwellings, as seen in no. 3 in the PLATE. Roofs are often used by the inmates as rubbish-heaps, and one may find all kinds of kitchen-refuse upon them (especially potsherds). If such a hut were abandoned or caught fire the roof with its load of rubbish

would collapse into the pit, and one can readily imagine what a fine prehistoric culture-layer would result. It is quite likely, in fact, that the contents of many of our prehistoric habitation-pits were formed in this way.

Pit-dwellings and stables with side-entrances are far more common than the type first described. The Rumanian *bordeu* is nearly always of the type with a side-entrance. Modern pit-dwellings in Rumania have developed into two-roomed huts and tend to rise nearer to the surface of the ground. One may watch here the whole process of development from the roofed pit-dwelling, through the ridge-roofed hut with a sunk floor and quite low walls, into the roofed house standing on ground level.[22]

No. 1 in the PLATE shows a very large Rumanian *bordeu* after a French drawing of the middle of the last century. It is a most advanced construction with low upright walls and a chimney. The title describes it as an inn. Today the pit-dwelling is the normal form of domestic architecture only in quite remote villages, for instance in the Dobrudja.

Occasional pit-dwellings are still found in many parts of Hungary and the Balkans, not only in the villages as permanent homes but also especially in field, forest and garden, used for other purposes. In Hungarian vineyards the vintners build themselves huts of this kind as shelters (no. 4 in the PLATE), and so do the woodcutters in their forests.[23] In this connexion it is interesting to note[24] that at Zengövarkony, in the province of Baranya, there exist in the cattle-pastures pit-dwellings 2 m. deep inhabited by communities of some half-dozen shepherds or farmers. Possibly we have here a survival of an archaic social institution (*Männerbunde*) which would repay further research.

In southeast Europe since the War civilization has advanced by leaps and bounds, mercilessly sweeping away, in its victorious march, the few relics of archaic culture still surviving in country life. It is essential, therefore, to preserve faithful records of anything we still possess, a task to which this paper offers a small contribution.

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[22] Plopsor, ' Bordeiul in Oltenia ', *Bull. Soc. Reg. Române de Geogr. in Bucarești*, 1922, XLI, 124 ff.

[23] Photos in the picture collection of the Ethnographic Museum, Budapest.

[24] Personal communication from Dr Ebner of the Ethnographic Museum, Budapest.

Roman Barrows

by G. C. Dunning and R. F. Jessup

ROMAN barrows have long been known on the Continent and in this country, but until recent years they have hardly received the attention they deserve. In the forties and fifties of last century a number of Roman barrows suffered from the jaunty zeal of top-hatted antiquaries and their attendant ladies who, as at the opening of the Holborough barrow* in 1844, contrived to pass the time ' at intervals between digging and pic-nicing, in games of various descriptions . . . and in other amusements ', but who were sometimes glad of the shelter ' afforded by the hole we had ourselves dug . . . in which we managed so to interlace parasols and umbrellas . . . as to form a tolerably impenetrable roof over our heads '.

A number of Roman barrows have been excavated during the past fifty years and, in particular, the carefully recorded work of the Morant Club in Essex about 1910-15 deserves mention here. Since the War, the study of Roman barrows has been placed on a more adequate basis by two publications : Sir Cyril Fox in *The Archaeology of the Cambridge Region* (Cambridge, 1923), pp. 191–200, has made an intensive study of the barrows in East Anglia, and Mr O. G. S. Crawford has tabulated the characteristic features of Roman barrows in Antiquity, 1927, I, 431–2 and in *Wessex from the Air* (Oxford, 1928), pp. 16–17.

The following essay is based on material derived from these two sources with various additions. We wish also to acknowledge the valuable criticisms and suggestions which we have received from Dr R. E. M. Wheeler, who has kindly allowed us to incorporate his notes and conclusions.

In Britain, Roman barrows are restricted, with a few isolated exceptions, to an area bounded by the Wash, the Severn, and the North Downs. The major examples are in the eastern part of this area, and occur in Kent, Essex, and Hertfordshire ; barrows outside these regions are mostly of lesser size and poorer in contents, and presumably represent the marginal spread beyond the main area of influence.

* *Gentleman's Magazine*, December 1852, p. 568.

They occur either singly or in groups of three or four ; exceptionally the number is as high as six (Stevenage, Hertfordshire), or seven (Bartlow Hills, Essex). They are frequently found by the side of Roman roads or trackways ; sometimes they are aligned in a row (PLATE I and FIG. 1), without any obvious reference to structures, and often they are situated in the vicinity of a Roman house or building. Almost without exception they occupy a geographical position such as was not favoured by prehistoric barrow-builders.

The mounds are of large size, an average diameter being 80 feet—the largest, 144 feet, is one of the Bartlow Hills (PLATE II) in Essex, and the smallest, 32 feet, is Emmanuel Knoll at Godmanchester in Huntingdon. The average height is about 18 feet, though one of the Bartlow Hills reaches the exceptional height of 45 feet. The sides are steep, and the mound conical in shape and occasionally truncated so as to form a level platform at the summit ; a small bank is sometimes placed inside the surrounding ditch, the ditch itself being an imposing feature often of some 20 feet in width, and in one instance, at Chesterton in Huntingdon, there is a causeway across the ditch, There is no definite evidence of exterior stone walling or revetting in any of the barrows in this country.

Usually the central burial is by cremation ; where reliable details are available, the figures are :—cremation, 25, inhumation, 5. It may be placed either above the level of the ground—and in one instance at Youngsbury, Herts, it is 4 feet above ground level—or within a cist in a grave-pit dug into the soil, such cists being built of tiles, mortar and stones, or even wood, and sometimes lined with wooden planks. Remains of wooden burial chambers and the nails or bolts used in their construction are not at all uncommon, and in one burial the cremated remains were placed in a saucer-shaped depression in the ground and simply covered with a wooden board. There is little variation in the manner in which the cremated bones are disposed : they may be placed either in a glass urn or bottle or less frequently in a pottery vessel, and sometimes the glass vessel is in its turn enclosed in a lead canister. It is usual to find accessory vessels of glass and pottery, some of which no doubt contained food and drink. The Bartlow Hills in Essex, which covered some of the most richly furnished burials yet known in Britain, contained in addition an enamelled casket, and fine bronzes of classical design which had evidently been the property of a family of note. Indications of a careful burial-ritual are furnished by traces of aromatic substances in the graves, by the provision of food and drink for the

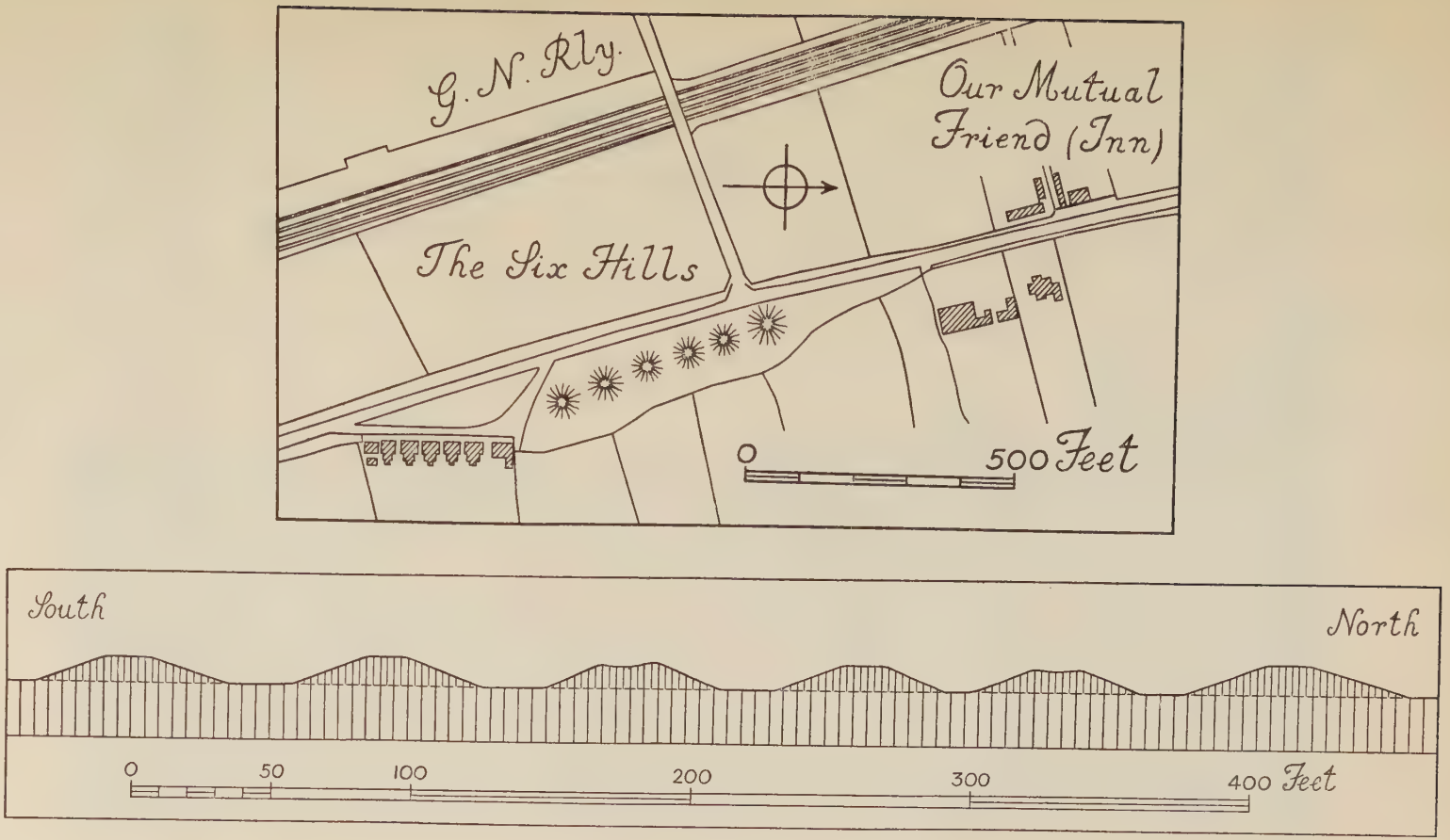


FIG. 1. PLAN AND SECTION OF THE SIX HILLS, STEVENAGE, HERTS

deceased, and by the frequent presence of lamps with the remains of a charred wick in the nozzle which had evidently been alight when the grave was finally closed. Ritual of a more barbaric nature is indicated

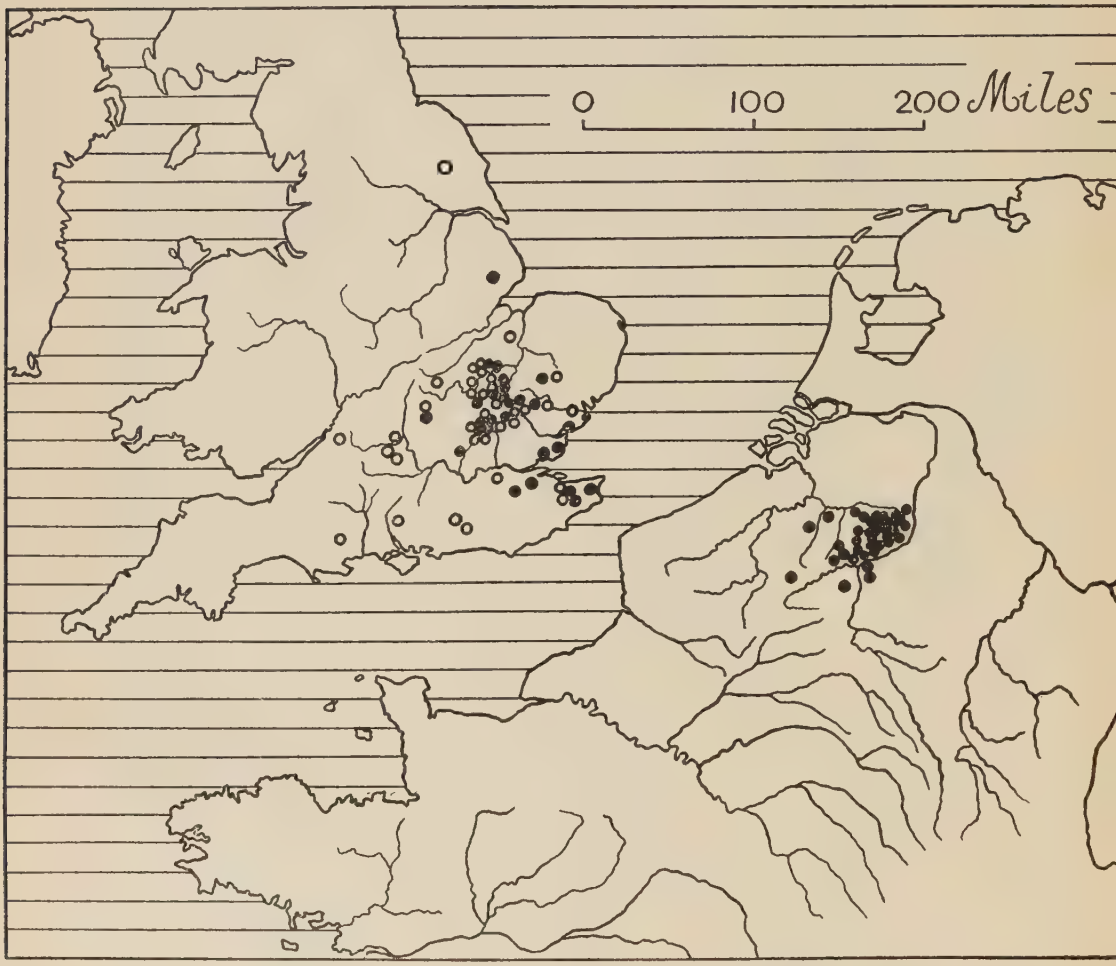


FIG. 2. DISTRIBUTION-MAP OF ROMAN BARROWS

● Barrows of known Roman date. ○ Barrows of presumed Roman date. Groups of Barrows are indicated by a single symbol

by the West Mersea barrow ; over the tomb and on the old land surface for 15–20 feet from the tomb was sprinkled a thin layer of crushed red tile mixed with yellow ochre. In this connexion, too, it may be well to

PLATE I

THE SIX HILLS, STEVENAGE, HERTS

facing p. 40

ONE OF THE BARTLOW HILLS, ESSEX, LOOKING NORTHEAST

PLATE II

1 2

1. MODEL OF ENAMELLED CASKET FROM THE BARTLOW HILLS, ESSEX
(*By permission of the Trustees of the British Museum*)

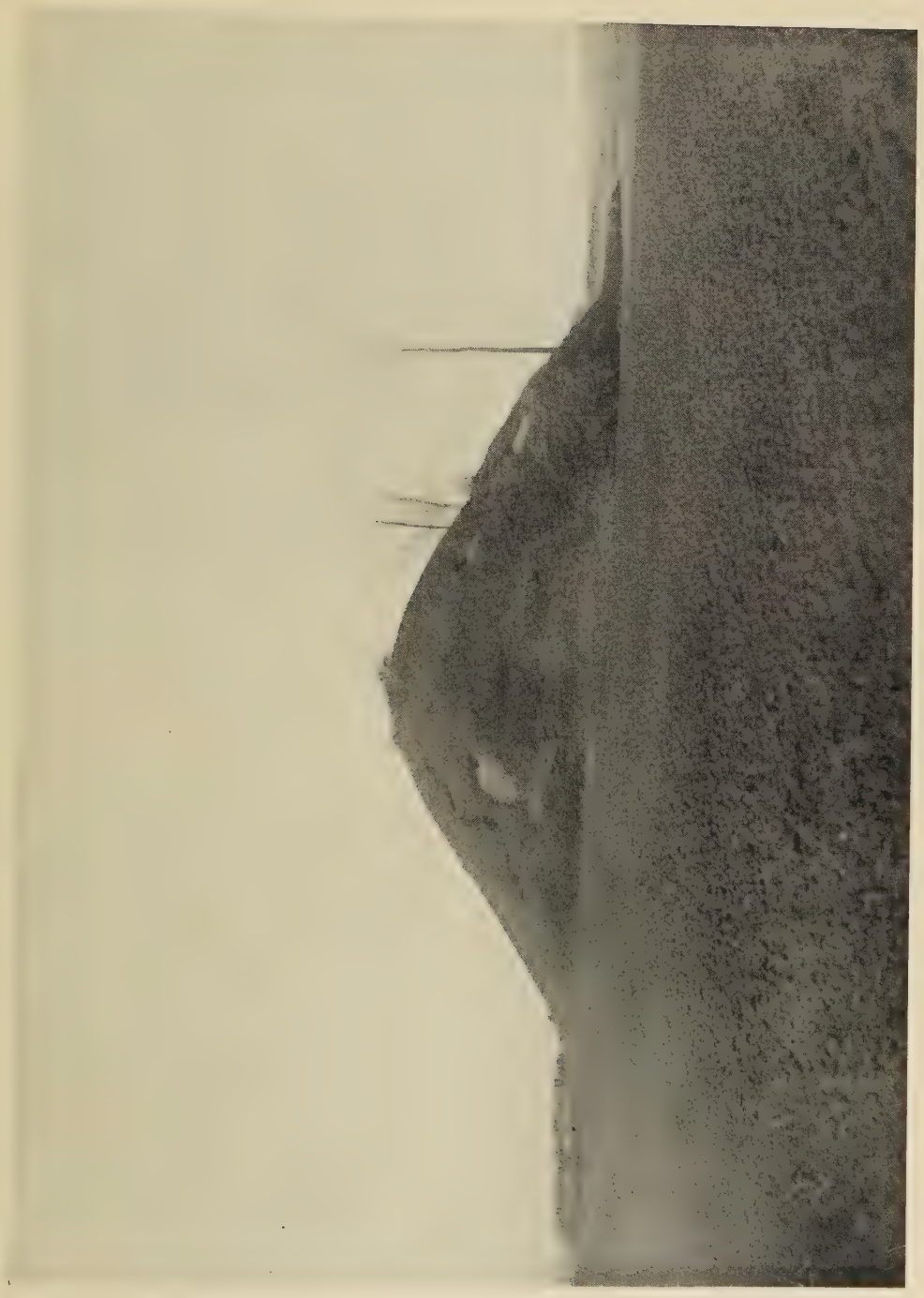
2. BRONZE JUG FROM BARROW AT TIRLEMONT, BRABANT
(*Musée du Cinquantenaire, Bruxelles*)

PLATE IV

ROMAN BARROW AT KONINXSHEIM, BELGIUM

Ph. J. Pelham Maitland

PLATE V



A SECOND ROMAN BARROW AT KONINXSHEIM, BELGIUM
Ph. J. Pelham Maitland

PLATE VI

1

2

3

4

1. GOLD-MOUNTED SARDONYX CAMEO OF OCTAVIUS. Barrow at Tirlemont, Brabant
2. GLASS VESSEL IN THE FORM OF A BUNCH OF GRAPES. Barrow at Frésin, Limbourg
3. AMBER CUP CARVED WITH A WINGED MONSTER. Barrow at Cortil-Noirmont, Brabant
4. LIZARD CARVED IN ROCK CRYSTAL. Barrow at Cortil-Noirmont, Brabant

(*Musée du Cinquantenaire, Bruxelles*)

lay emphasis on the sacrificial nature of the bronze vessels from the Bartlow Hills, though such funerary deposits are by no means solely confined to barrow-burials. Coins are occasionally found with the burials, and other minor objects include brooches and rings.

It is rare to find secondary burials of later date in Roman barrows, and the only well-attested instance seems to be the Linton Heath barrow in Cambridgeshire, where a Saxon cemetery occupied a large barrow with a primary Roman cremation burial.[1]

The few inhumation barrows that are known contain coffins of lead, stone, or wood, and are further characterized by a lack of grave-furniture. An unusual barrow at Rougham in Suffolk is remarkable for the miniature gabled building which housed the burial. An indication of the date of the inhumation burials is given by the absence of grave-goods, which were less regularly deposited after the change in burial-rite from cremation to inhumation.

The date of the cremation barrows can usually be deduced with some precision from the grave-goods, and with the usual reservations, the coins, Samian ware, coarse pottery, and glass may be studied in this connexion.

The coin evidence is brief. The Arms Hills at Bourne in Cambridgeshire yielded a coin of Marcus Aurelius (161–180 A.D.); a second brass of Hadrian (117–138 A.D.) was found in one of the Bartlow Hills, Essex. Analogous evidence is provided by the Samian pottery: that from the Bartlow Hills is representative, ranging from Flavian to Domitian-Trajan and Domitian-Antonine, and for the rest there seems to be nothing later than the middle of the second century. Square glass bottles with broad right-angled handles, and globular glass urns with or without handles, such as occur frequently, are satisfactorily dated by their affinity with Continental material to the end of the first and the beginning of the second centuries. The coarse pottery is seldom adequately described and often now inaccessible, but 'poppy-head' beakers of the type found in the first and second centuries may be recognized. Finally, the Bartlow bronzes, which are of outstanding character and workmanship, can be dated with some assurance, and there is little doubt that the enamelled casket (PLATE III), the trefoil-lipped jugs, and the reed-handled skillets all belong to the second century. A few of the barrows may be as early as the late first century,

[1] The exact site of barrow and cemetery still remains to be determined; will not someone locate it? The published accounts are vague, and the name 'Linton Heath' no longer appears on the Ordnance Maps. O.G.S.C.

but the majority certainly belong to the first half of the second century and a few may be as late as the end of the century. It seems certain from the evidence available at present, that no Roman barrows of this type were built later than the close of the second century.

It is necessary to qualify the lower limit of date for, as has been noticed already, there are a few instances where the burial is by inhumation. In three cases the records are not as complete and satisfactory as could be wished. A stone coffin was found in a barrow at Lord's Bridge, Barton, Cambridgeshire ; it is quoted as hearsay evidence by Camden that coffins had been dug out of one of the Bartlow Hills ; and Leland speaks of ' a corse closed yn leade ' from the Dungil at Canterbury. More is known, however, of the other two examples of inhumation barrows. At Richborough, Kent, a small barrow with a diameter of about 60 feet was mutilated by the building of the wall of the Saxon Shore fort. It contained a rectangular stone chamber, which had been cut into by the foundation trench of the wall, and the burial, which was by inhumation in a wooden coffin, and accompanied only by a small bronze pin, was in a pit 8 feet below the floor of the chamber. The date of the barrow is not earlier than *c.* 200 A.D.[2] The other barrow is at Rougham in Suffolk where, on a concrete platform in the mound, was a small gabled structure which contained a lead coffin.[3] In each of these barrows there were no grave-goods.

We may now turn to the Continent and briefly review the evidence of the Belgian barrows, of which a great number have been carefully excavated and described. In addition to the excavation reports, there is an excellent summary with a distribution-map (on which FIG. 2 is based) in *Annales de la Société archéologique de Namur*, 1900, XXIV, 45–56 ; and M. F. Cumont discusses them in his paper ' Comment la Belgique fut romanisée ', p. 88. The barrows are grouped on the north side of the Meuse, mainly between Namur and Maastricht. They occur in largest numbers in the contiguous provinces of Brabant, Limbourg, Namur, and Liège, either singly or in groups of two or three, near Roman buildings or by the side of ancient roads, particularly by the great Roman road from Bavay to Maastricht.[4]

Structurally, the Belgian barrows are practically identical with

[2] *Richborough Report*, III, 5, 25–29.

[3] *Procs. Suffolk Inst. Arch.*, IV, 271.

[4] Certain barrows to the south in Luxembourg may belong to this group, but the evidence is insufficient to justify their inclusion on the distribution-map. See *Annales Soc. arch. Namur*, 1934, XLI, 21.

those in this country, and only a brief account based on the published descriptions is necessary here. Usually the barrows are larger than their British analogues, but vary greatly in dimensions ; one of the smallest is only about 40 feet in diameter and 4 feet high, whereas the largest reaches about 145 feet in diameter and 40 feet in height. The barrows are steep-sided, of a regular conical shape, sometimes truncated (PLATES IV, V), and seem to have been set out with reference to a central stake fixed in the ground. Generally there is a single burial at or near the centre, and on or below the level of the ground. The burial-pit is commonly lined with thick planks held together with large iron nails ; sometimes the pit is lined with large stones, and in a barrow at Middelwinden it was cut down into the solid rock.

In the Belgian barrows the burial is always by cremation and accompanied by rich grave-furniture. Amongst those which have been excavated it is difficult to select any for particular mention, but the following outline of the contents of a few of the more important barrows will serve to indicate the wealthy nature of the burials.

A barrow at Tirlemont, Brabant, contained a cameo head of Octavius in sardonyx mounted in a gold case of fine workmanship, together with bronze jugs and dishes (PLATES III and VI). Another, at Cortil-Noirmont, Brabant, yielded an exceptionally fine glass jug and bronze vessels, a lizard carved in rock crystal, a cup of amber engraved with a winged monster, and a glass vessel decorated in blue and white (PLATE VI). These *objets de luxe* are dated by a coin of Marcus Aurelius (161–180 A.D.) found in the grave. At Herstal a large barrow was furnished with much pottery, a strigil and jugs of bronze, and a bronze lantern, evidently the representative of the iron lamp in Britain, also a bronze casket naïvely ornamented in relief with philosophers and satyrs.

Two barrows at Bois de Buis on the Tongres-Bavay road were excavated by the Société archéologique de Namur in 1899. At the base of the first barrow was a layer of ashes with a bronze brooch and a coin of Hadrian (117–138 A.D.). The grave itself was a wood-lined cist ; it contained a cremation burial in a pottery jar, with a silver coin of Nerva (96–98 A.D.), glass urns, coarse pottery, and a good deal of Samian ware most of which belongs to the Hadrian-Antonine period. The second barrow, which had a tomb of stones at the level of the ground, contained cremated bones in a glass bottle, many accessory vessels of glass and pottery, and two unidentifiable coins.

Finally, a barrow excavated in 1921 at Penteville, near Gembloux,

Namur, has recently been fully published.[5] The mound, about 105 feet in diameter, was surrounded by a stone retaining-wall with buttresses, and had a central core of loose stones piled over the burial chamber, built of large stone slabs and measuring about 6 feet by 5 feet and 3 feet high inside. The burial of burnt bones was enclosed in a lead canister similar to that in the Mersea barrow, and was surrounded by a rich assortment of bronzes, glass, and pottery. One pot contained bones of a dog, sheep and rabbit, and two boar's tusks. The grave was exceptionally well provided with coins. Inside the canister were coins of Vespasian (69–79 A.D.), Titus (79–81), Trajan (98–117), and Hadrian (117–138) ; and on the top of the canister was a group of four more coins, of Galba (68–69 A.D.), Trajan, and Hadrian. The burial is thus securely dated to the reign of Hadrian. The inclusion of no less than three coins of the first century is a warning against placing undue value on isolated early coins sometimes found in the barrows.

A study of the objects deposited in the Belgian barrows shows that, as in Britain, the majority, if not indeed all of them, belong to the second century. The close connexion between the British group and the Belgian group is borne out not merely by the character of the mounds themselves but also by that of their furniture. The richly enamelled bronze casket from the Bartlow Hills, together with other enamels of this class found in Britain, finds its parallel in the region of Namur, and is probably an importation from that district ; it may be recalled that one of the main centres of the enamel industry is located in the province of Namur.[6] It is probable also that the large glass jugs and globular urns found so frequently in the British mounds emanated from the factories of the Rhineland and northern Gaul.

How far, if at all, Romano-Gallic barrows may be expected in northeastern France is at present unknown, in the complete absence of information for this region. In Central France a barrow with a primary Roman burial has recently been excavated by Mr N. Lucas Shadwell, and we are indebted to Mrs D. Brogan and Mr C. F. C. Hawkes for bringing it to our notice. This barrow is the Tumulus de La Jugie at Sarran, near Tulle, Dept. Corrèze. The body had been cremated on the spot, and the burnt bones placed inside a large stone urn, together with a pottery vessel of painted ware and several iron

[5] *Annales Soc. arch. Namur*, 1934, XLI, 3–27.

[6] *Annales Soc. arch. Namur*, XXIV, 237 ; XXVI, 173. See also Mlle. Françoise Henry, 'Emailleurs d'Occident', *Préhistoire*, II, 108 ff.

objects. On the hot ashes outside the burial were several Samian plates (form 79), dating the burial to 150–200 A.D. This isolated example is about 370 miles from the Belgian group of barrows, and may or may not be significant in the present context. It suggests, however, that field-work in the intervening part of France might add other mounds to form a Western Gallic group. We are indebted to Dr F. A. Schaeffer, of the St. Germain-en-Laye Museum, for kindly making enquiries in France, and eliciting the following reply from Professor A. Grenier, of the University of Strasbourg, who writes : ' in the south of France I do not know of any tumuli of the Roman mausoleum type ; neither are there any barrows of the Roman period, either with or without a retaining wall of masonry. In east and north-east Gaul there are many barrows of uncertain age, which were often re-conditioned and used as mottes in the Middle Ages,* and are liable to be mistaken for Roman barrows '.

The problem of the origin of Roman barrows remains to be considered. The British and Gallic barrows form a concise geographical and chronological group which should be capable of explanation. In period they range from the end of the first century A.D. to the end of the second century or perhaps, in Britain, a little later ; they appear to have flourished more especially between 100 and 150 A.D. Now neither in this country nor in Gaul is there any effective continuity with the widespread mound-burials of prehistoric times. Barrows of the Belgic period are indeed known, but in Britain two only have as yet been identified and recorded. These are the famous tumulus at Lexden, near Colchester,[7] with its wealth of imported classical bronzes, and a small barrow at Hurstbourne Tarrant, near Andover.[8] These richly furnished burials must belong to Belgic nobles—the Lexden tumulus may even be the grave of Cunobelin himself—and they find their natural inspiration in the chieftains' burial-mounds of Normandy,[9] in the very region whence the Belgic immigrants of Britain crossed the Channel. Both the British mounds are well dated to the early or mid first century A.D., and so are separated by about half a century from the Romano-British group; moreover, the evidence at present available does not suggest that this gap is likely to be bridged by future discoveries.

* An analogous instance of a motte being thrown up over a prehistoric barrow is provided by a mound at Rug Park, Merioneth. See *Antiquaries Journal*, 1922, II, 64.

[7] *Archaeologia*, 1926–7, LXXVI, 241.

[8] *Archaeological Journal*, 1930, LXXXVII, 304–9.

[9] *Ibid.* LXXXVII, 214–17.

Thus there is no reason for associating the introduction of barrow-building into Roman Britain with the main pre-Roman immigrations of Belgic culture. Moreover, the Belgian group of barrows lies well to the northeast of the Continental pedestal-urn and bead-rim pottery areas, and must be considered independently of them,[10] as an essentially new phenomenon at the time of the Roman development of Gallia Belgica.

We therefore turn to classical sources, and are at once reminded of the mausolea of the Roman Emperors. Mound–burial in a more or less elaborate and sophisticated form was a recognized feature of the Roman tradition, and consisted essentially of a mound of earth with a facing of stone or brick, and internal radiating walls to counteract the thrust of the mass of earth. For example, the mausoleum of Augustus, built in 28 B.C., was described by Strabo[11] as a mountain of earth planted with evergreen trees, raised on a lofty base of white marble 280 feet in diameter, and on the summit was a bronze statue of the Emperor.[12]

Monuments based on the Italian model are occasionally found in the Roman provinces north of the Alps, and in varying degree embody all the features of their prototype. The best known is a group in the region of Trier.[13] These vary from 70 to 154 feet in diameter, and have a series of relieving arches within the outer retaining wall ; in addition, one tomb has radiating walls, and two of the monuments have a central structure, but the evidence for burials is scanty.

In France the only monument of this kind adequately recorded is the structure known as ' La Gironette ', outside the town-wall of Autun.[14] It was 82 feet in diameter, with internal relieving arches and eight walls radiating from the central core. The only comparable structure in England is the ' cart-wheel ' mausoleum at West Mersea, Essex[15] ; this is 65 feet in diameter, with marginal buttresses and six walls radiating from a central ring-wall.

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[10] Compare FIG. 2 with distribution-maps in *Arch. Journ.*, LXXXVII, 189, FIG. 7, and p. 283, FIG. 25.

[11] *Geography*, V, chap. III, 8.

[12] A detailed account of the mausoleum of Augustus is in *Papers of the British School at Rome*, 1927, X, 23–35. The mausoleum of Hadrian is fully described in *Journ. Roman Studies*, 1925, XV, 75–103.

[13] H. Koethe in *Germania*, 1935, XIX, 20.

[14] H. de Fontenay, *Autun et ses Monuments* (Autun, 1889), p. 209.

[15] *RCHM. Essex*, III, 229. A. W. Clapham, ' Roman mausolea of the cart-wheel type ', *Archaeological Journal*, 1922, LXXIX, 93.

Roman barrows seem to stand in logical succession to these provincial mausolea, and to represent a further stage of transformation from the ostentatious Italian tombs. The structural link between the mausolea and barrows is provided by four of the Belgian barrows, those at Cortil-Noirmont, Glimes, Hottomont,[16] and Penteville,[17] which had a circular retaining-wall inside the mound ; in addition, the wall in the Penteville barrow had buttresses. The structure of the burial chamber, rarely of masonry but more frequently of cheaper brick, and the straight-sided pseudo-pyramidal form of the mound, are faint reflections of the dignity and splendour of the classical mausoleum.

In seeking for an explanation of the mass of Belgian barrows along the Meuse valley, it is well to bear in mind that in this region and more particularly to the north in Campine, there are numerous groups of low barrows, called *tombelles*.[18] The majority of these belong to the late Bronze Age and Hallstatt period, and a few are of early La Tène date. But even here there appears to be no possibility of direct continuity with the Romano-Belgic mounds. All that is here implied is that the presence in this region of numerous barrows of a long-past age may have fostered the emphasis laid on the earthen mound ; the general *idea* of mound-burial in Roman Gaul being a re-introduction from Roman sources, whilst the local *form* of this adopted custom owed something to the influence of the existing Bronze Age and Hallstatt burial-mounds with which the provincials were familiar.

We are thus, it seems, confronted with yet another manifestation of the individuality which Gallia Comata developed under the influence of the Romans. A familiar example of this individuality is the Romano-Gallic or Romano-Celtic temple-plan,[19] whilst a new but equally distinctive example is provided by the amphitheatrical type of theatre—now known as the ' cockpit ' type—such as that recently excavated at Verulamium by Miss Kathleen Kenyon, and identified by her as a Romano-Gaulish form.[20] How far domestic architecture may have followed equivalent provincial lines cannot yet be said, in the absence of adequate information from France. But even in minor cultural

[16] E. Rahir, *Vingt-cinq années de recherches* (Bruxelles, 1928), pp. 218, 222, 243.

[17] *Annales Soc. arch. Namur*, 1934, XLI, 23–24.

[18] Baron de Löe, *La Belgique Ancienne*, II, Les âges du métal, especially pp. 76–77, 174–5, 183–94, 199–200.

[19] R. E. M. Wheeler in *Antiquaries Journal*, 1928, VIII, 316 ff ; H. Koethe in *Bericht der Römisch-Germanischen Kommission*, 1933, p. 10 ff.

[20] *Archaeologia*, 1934, LXXXIV, 213 ff.

details we find a similar provincial individuality ; for instance, in the distribution of ' hippo-sandals ', which are common in Britain and northern Gaul[21] but hardly occur south of Maçon, and in certain brooch-forms, notably the so-called Langton Down type.[22]

We suggest, then, that the purely local development of mound-burial in the northeastern corner of Gallia Comata is another product of Roman civilization *in partibus* during the same curiously formative period of North-Gaulish culture. Just as the Gaulish temple-builders and theatre-designers adopted Roman ideas and transmuted them, so, in a particular Gaulish area, some individual tomb-builder paraphrased a Roman custom and developed it into a local tradition.

The reason for the spread of this custom to Britain is to be sought in the strong links of a commercial character which existed between this country and the Rhineland—a connexion that is indeed strikingly demonstrated by the contents of the burial-mounds themselves. These imposing mounds may well be the resting-places of wealthy merchants from Belgic Gaul, who participated in the intensive commercial development of Britain during the first half of the second century.

Roman Barrows in Britain

The following lists provide a key to the distribution-map (p. 40). It is hoped that they will serve as a guide in directing future field-work, and in selecting barrows for excavation.

C.=Cremation ; I.=Inhumation ; *RCHM.*=Royal Commission on Historical Monuments ; *VCH.*=Victoria County History ; *A.C.R.*=C. Fox, *Archaeology of the Cambridge Region* (Cambridge, 1923) ; *Wessex*=O. G. S. Crawford and A. Keiller, *Wessex from the Air* (Oxford, 1928).

1. Barrows of known Roman date, with primary burials of this period.

The site, the type of burial, and notes and references are given. Where possible, the present location of the ' finds ' is indicated within square brackets.

Buckinghamshire

Thornborough. (2). Stone floor with fragments of pottery and glass, a gold ornament and ring, and iron weapons. [Audley End]. One opened in 1840. *RCHM. North Bucks*, 298.

Cambridgeshire

Barton, Deadman's Hill. Iron nails and fragments. Roman pottery. Destroyed. *C.A.S. Proc.* xiv, 53 ; *A.C.R.* 196.

[21] *Revue des Musées*, 1928, 1929, and 1930 ; R. E. M. Wheeler, *London in Roman Times* (London Museum, 1930), p. 149, and *Verulamium Report*, p. 220.

[22] *Lydney Report*, p. 71.

Barton, Lord's Bridge (Hey Hill). I. Stone coffin. Fragments of Roman pottery outside coffin. Near Roman road. *C.A.S. Proc.* XII, 273; *A.C.R.* 194.

Bourne, Arms Hills. (1). C. Barrow with ditch, burial on ground level. Bronzes, pottery, coin of Marcus Aurelius (161–180 A.D.). (2). C. Two barrows superimposed. Inner barrow as (1), the other being post-Roman. Excavated 1911. *C.A.S. Proc.* XV, 166; *A.C.R.* 194–5.

Hildersham. ? C. Below ground level. Fragments of Roman pottery, and also in clay puddling. Saucer-shaped hollow lined with puddled clay, the burial being on this floor. cf. Broxbournebury, Herts. Excavated 1852. *A.C.R.* 195–6.

Linton, Linton Heath. C. 'Roman vase'. Large barrow with primary Roman cremation and secondary Saxon inhumations. There were four other barrows nearby. *Arch. Journ.*, XI, 95; *A.C.R.* 196–7, 260.

ESSEX

Ashdon. The Bartlow Hills. PLATE II. Two parallel alignments running nearly N–S, and here numbered separately in that direction.

(A) Western group. 1, 2, and 3 are destroyed. 3, 4, and 5 were excavated in 1832.

(1, 2). Said to have contained skeletons in stone coffins.

(3). C. Wooden chest. Glass jugs, iron lamp, bronze jug and patella, wooden coffer.

(4). C. Wooden chest. Glass jugs, iron lamp, wooden coffer, Samian (late 1st cent.) and coarse pottery.

(5). C. Brick cist. Glass jug with second brass of Hadrian (117–138 A.D.) and gold ring, glass bottle containing thick liquid, metal-bound wooden tankard, basket-work, and wooden coffer.

(B) Eastern group. Excavated 1835–40.

(1). Previously opened, probably in 1815. Bronze bowl and strigil, iron lamp. [Saffron Walden]. *Essex Arch. Soc. Trans.* N.S. VII, 349.

(2). C. Wooden chest. Glass jug, bronze jug and basin, iron lamp, glass beaker, Samian (early 2nd cent.) and 'poppy-head' beakers.

(3). C. Wooden chest. Glass jug, 3 glass jugs with liquids, iron folding chair with bronze fittings, bronze lamp, strigils, decorated bronze jugs and patella, and enamelled casket, pottery. Outside the chest a large globular amphora with burnt bones.

(4). C. Wooden chest. Glass jug, decorated bronze jug and patella, iron lamp, glass, Samian (early 2nd cent.) and coarse pottery. Chicken bones in Samian dish, and remains of sponge near burial.

All the grave-furniture, except that from B (1), was destroyed by a fire at Audley End in 1847. Remains of the enamelled casket in B (3) and model of it (pl. III) in British Museum (*Guide to Roman Britain*, p. 96 and pl. IX). For excavations 1832 and 1835–40, see *Arch.* XXV, 1; XXVI, 300; XXVIII, 1; XXIX, 1; *J.B.A.A.* XIX, 250; see also *Antiquity*, I, 346, 431; *RCHM. Essex*, I, XXIV, 4–5, with plan and sections; *RCHM. Hunts*, XXXIII; *A.C.R.* 191–4, a very good summary.

Foulness, Little Shelford. C. Seven or eight pots including early 2nd century Samian. Destroyed. *J.B.A.A.* IV, 74; *RCHM. Essex*, I, 47.

Langley. C. Broken bricks, glass, and Samian. *Essex Arch. Soc. Trans.* I, 194; *A.C.R.* 196.

Mersea Island. C. Cist of tiles, boulders, and mortar. Glass urn in lead casket. Over the tomb and on the old land surface was a thin layer of crushed red tile mixed with yellow ochre. [Colchester]. *Essex Arch. Soc. Trans.* N.S. XIII, 116; *Antiquity*, I, 347, 431, plate I; *Wessex*, 16; *RCHM. Essex*, III, 229.

HERTFORDSHIRE

Easnye Wood, near Ware. C. ? Wood-lined grave. Burnt bones under charred slab of wood. No objects. Excavated 1899. *P.S.A.L.* XVIII, 8.

Harpenden. C. Stone cist. Square glass bottle and pottery. [British Museum]. Excavated 1827. *VCH. Herts*, IV, 153.

Hoddesdon, Broxbournebury. C. Built over a saucer-shaped depression, in which a large fire had been lit. Part of quern of Andernach lava found in depression, and Roman pottery in mound. Excavated 1901. *P.S.A.L.* XIX, 7. *E. Herts. Arch. Soc. Trans.*, II, 6; *A.C.R.* 196.

Standon, Youngsbury. C. Wood-lined cist. Burnt bones in grey urn, globular glass bottle, square glass bottle with cremated bones, iron nails. Two barrows on what may be a Roman road. Excavated 1889. *Arch.* LII, 287; *VCH. Herts*, IV, 164; *Antiquity*, I, 431; *RCHM. Essex*, I, XXIV.

Stevenage, The Six Hills. PLATE I and FIG. I. 'Wood and iron' from one excavated in 1741. Alignment N–S on supposed Roman road. *E. Herts. Arch. Soc. Trans.* III, 178. *Arch.* LIII, 260 with full references; *Antiquity*, I, 347, 431; *Wessex*, 16; *A.C.R.* 197.

Watford. 'Roman interment', probably surrounded by tiles, found beneath a barrow in 1860. Also 'several gold things, copper coins, and a lot of pickle-jars with burnt bones in them'. Cussans, *Hist. Herts.*, III, *Cashio Hundred* (1881), 181; *VCH. Herts.* IV. 165.

HUNTINGDONSHIRE

Godmanchester, Emmanuel Knoll. By side of Roman road. C. Wooden chest with iron nails. Burnt bones in urn. Destroyed 1914. *Cambs. and Hunts. Arch. Soc. Trans.* IV, 14; *A.C.R.* 195; *RCHM. Hunts.* XXXIII, 106; *VCH. Hunts.* IV, 254 and pl. II, 4.

KENT

Bishopsbourne, Gorsley Wood. 3 barrows in a row. C. Stone cists. Near burials, 3 or 4 broken urns, pieces of fine glass, glass pin, bits of iron with traces of gold, and pieces of bronze ornaments. In largest barrow, pavement of large Roman tiles bordered with flints slanted down from outside towards the centre of the mound. Excavated 1882 or 1883. *Arch. Cant.* XV, 311; *P.S.A.L.* IX, 163; *Arch. Journ.* 279; Hasted, *Hist. Kent*, VII, 266; *VCH. Kent*, III, 146–7.

Canterbury. Group of 4 barrows known formerly as the Dungil Hills. 1 and 2 stood just within the southern part of the town-wall, 3 and 4 were just outside the walls. 2, 3, and 4 are destroyed.

(1). The Dane John, within the southern angle of the town-wall. In 1790 it was mutilated beyond recognition and the surrounding ditch filled in. An illustration in Nichols' *Bibliotheca Topographica Britannica*, XLV, pl. XIII, 2, shows the original conical form of the barrow as it appeared in 1787.

(2). Little Dungil, about 300 yds. northeast of the Dane John.
(3). Near Canterbury East station, destroyed in 1860.
(4). About 100 yds. southeast of the Dane John. Destroyed in making a school at Rhodaus Town. C. ? Brick or tile cist. Pottery, oyster-shells, and animal bones. *Soc. Antiq.* MS *Minutes*, XXXIII, 15 Jan. 1789.

In one of the mounds, apparently in (2) or (3), Leland records an inhumation in a lead coffin, presumably Roman. Leland says ' many yeres sins men soute for treasor at a place cauled the Dungen . . . and thar yn digging thei fownd a Corse closed yn leade. Gostling, *A Walk in and about the City of Canterbury* (1825), p. 9 ; *Arch. Journ.* XXXII, 370 ; LXXXVI, 272–5, pls. I and XI. *VCH. Kent*, III, 77.

Plaxtol, Thompson's Farm. I. Skeleton with no objects at centre of barrow, and at the circumference deposits of pottery including early 2nd century Samian, glass vessels, 1st cent. brooches, and remains of bronze bound box. [Maidstone]. Information from Mr N. C. Cook. *Arch. Cant.* II, 6–7 ; *VCH. Kent*, III, 163.

Richborough. I. Wood coffin in grave, partly under west wall of Saxon Shore fort. Bronze pin in grave. About 8 ft. above the burial were remains of masonry chamber about 13 ft. by 15 ft. Stone packing round the tomb, and remains of low mound. Burial not earlier than about 200 A.D. *Richborough Report*, III, 5, 25–29. *VCH. Kent*, III, 34.

Snodland, Holborough. C. Burial on layer of fine earth laid on platform cut in the chalk. Iron nails, broken pottery, and part of brooch. Excavated in 1844, now much mutilated. *Arch. Journ.* I, 262 ; *Gent. Mag.*, 1852, p. 568 ; *VCH. Kent*, III, 168.

LINCOLNSHIRE

Revesby. Two large mounds, in one a clay cist with ? burnt bones. *Lincs. Notes and Queries*, III, no. 21, 145. *Arch. Journ.* XCI, 177. Information from Mr C. W. Phillips.

SUFFOLK

Rougham. Four barrows in line near a Roman building. Excavated 1843–4.
(1). C. Tile cist, square glass jug, iron lamp.
(2). C. Tile cist below ground level. Two-handled glass urn, glass phial, illegible coin, Samian and jug of early 2nd cent., coarse pottery, iron lamp with wick, wooden casket. [Bury St. Edmunds].
(3). C. On ground level. Two urns and fragments of Samian.
(4). Eastlow Hill. I. Body wrapped in skins in lead coffin. Burial inside a small chamber of flint rubble and tiles, with ridged tile roof, standing on a concrete platform. No objects. (1) and (3) destroyed. *Suffolk Inst. Arch. Proc.* IV, 257–81 ; *VCH. Suffolk*, I, 315-6 ; *A.C.R.* 193–4.

2. BARROWS OF PRESUMED ROMAN DATE, AS INDICATED BY THEIR FORM OR GEOGRAPHICAL POSITION. MOUNDS WHICH HAVE BEEN EXCAVATED, BUT THE DATE OR PURPOSE OF WHICH IS NOT PROVED, ARE ALSO INCLUDED.

BEDFORDSHIRE

Biggleswade. Now destroyed ; formerly by side of Biggleswade-Sandy Roman road. *A.C.R.* 197–8.

Clifton. C. Bowl-shaped urn. [Cambridge]. *A.C.R.* 197.
Roxton, The Round Hill. Wadmore, *Earthworks of Beds.*, p. 259–60; *VCH. Beds*, I, 297.

BERKSHIRE

Uffington, Cowleaze Farm. Jet ornament, shale ring, bronze pin. [British Museum]. Destroyed. Peake, *Arch. Berks*, 106.
Kingston Lisle. An isolated barrow near Fawler. *Antiquity*, I, 347, 479; *Wessex*, 17. For the significance of the place-name 'Fawler' see *Antiquity*, I, 479.

CAMBRIDGESHIRE

Impington, How House. Roman coins according to Lysons. By side of Roman road. *A.C.R.* 196, points out that the situation is suggestive, but that coin-evidence is poor.
Comberton, Fen Drayton, Shudy Camps, Swavesey, Trumpington, Wilburton. *A.C.R.* 198.

DORSET

Shapwick, Badbury Rings. Three barrows in a row alongside the Roman road from Dorchester to Old Sarum. The bank flanking the road is interrupted by the barrows. *Antiquity*, I, 346; *Wessex*, p. 59 and pl. IV.

ESSEX

Hockley, Plumberrow Mount. No burial found. Near centre, remains of post 9–12 in. diameter, set 2½ ft. in floor. Coin of Domitian (81–96 A.D.) and Roman pottery on old ground level below mound. Higher up, Saxon pottery, perhaps from secondary burials. Excavated 1914. *Essex Arch. Soc. Trans.* N.S. XIII, 224; *RCHM. Essex*, IV, 68.
Lexden, Lexden Mount. No burial, but mound disturbed previous to excavation in 1910. Roman pottery on old ground level and in mound. *Essex Arch. Soc. Trans.* N.S. XII, 186. *RCHM. Essex*, III, 74.
Newport, Quendon Park, Sturmer. *A.C.R.* 198; *RCHM. Essex*, passim.

GLOUCESTERSHIRE

The Hyde Tumulus, near Stroud, C. At centre, chamber of stones containing burnt bones, ashes, and bronze brooch 'of Roman type'. Excavated 1848. *Proc. Cotteswold N.F.C.*, V, 284; Witts, *Arch. Handbook of Glos.* 97–8.
These references we owe to Mr L. V. Grinsell.

HAMPSHIRE

Winchester, east of Magdalen Hill. Three unopened barrows, the shape of which suggests a Roman date. Information from Mr L. V. Grinsell.

HERTFORDSHIRE

Anstey, Brent Pelham, Knebworth, Little Hormead. *A.C.R.* 198.
Widford. *VCH. Herts*, IV, 169.

HUNTINGDONSHIRE

Abbott's Ripton, Chesterton, Great and Little Stukeley, Hail Weston, Tetworth. *RCHM. Hunts.* 106; *VCH. Hunts*; I, 223, 254, etc.; *A.C.R.* 198, and information from Miss M. V. Taylor, and Mr C. W. Phillips.

ROMAN BARROWS

KENT

Boughton-under-Blean, Nash Court park. Two barrows in N–S line, near Watling Street.

Chartham Downs. Small Roman glass bottle [British Museum] with brooch and coins of Lower Empire. The only reference to the barrow is in the British Museum Registers; it may have been a Saxon barrow, but a Roman barrow here is possible. This barrow has sometimes been described as at Chatham. *VCH. Kent*, III, 149.

Kingston, Kingston Down. Three large barrows aligned on Watling Street. They were 'turned over' by Faussett, who found no relics, but judging by their position they were probably Roman. *Invent. Sepulchrale*, 84, 86.

Sheperdswell, Three Barrow Down. Three barrows, two very large, in a line. Faussett, *Invent. Sepulchrale*, 121, 127.

West Wickham. C. Pottery. Apparently a barrow, now destroyed. *Arch. Journ.* LVIII, 103; *VCH. Kent*, III, 174.

NORTHAMPTONSHIRE

Daventry, Borough Hill. C. Roman pottery. The published accounts do not differentiate between prehistoric, Roman, and Saxon barrows, all of which existed here. The Roman pottery is not all likely to have come from Saxon barrows, though some of it may have done. Baker, *Hist. County Northampton*, I, 346, with other references. W. Edgar, *Borough Hill (Daventry) and its history*, (1923), p. 37 and plates 12–14 for pottery.

OXFORDSHIRE

Crawley. Oblong mound containing many skeletons with heads to west. Bronze and iron buckles, sherds of Roman pottery. ? Roman or Saxon. Excavated 1857 and 1864. References in *Arch.* LXXI, 239; *VCH. Oxford*, II, 347–8.

SUFFOLK

Stonham. Two barrows, one in churchyard. *VCH. Suffolk*, I, 316–7. Information from Miss M. V. Taylor.

SUSSEX

Bignor, barrow near Stane Street, Bury, West Firle. *Sussex Arch. Coll.* LXXV, 227, 235.

YORKSHIRE

Hovingham. Tall conical barrow alongside the Roman road from Malton to Aldborough, and near a Roman villa. M. Kitson Clark, *Gazetteer of Roman Remains in E. Yorks*, p. 17. Information from Mr I. A. Richmond.

Easter Island, Polynesia

by Henri Lavachery

Royal Museums of Art and History, Brussels

[Note.—M. Henri Lavachery, the writer of this article, was the Belgian member of the Franco-Belgian Expedition which visited Easter Island, and remained there from 29 July 1934 to 3 January 1935. It was initiated by Prof. Paul Rivet, of the Ethnographical Museum, Paris, and was actually two expeditions—a French one consisting of M. Watelin (who died before reaching Easter Island), and M. A. Métraux (of Swiss nationality), and the Belgian expedition represented by M. Lavachery. A joint subsidy was made by the Belgian Government and the National Belgian Fund for Scientific Research. The expedition was transported to the island by a French naval vessel and taken off it by the Belgian training-ship 'Mercator'. The visit of the expedition and the formation of its collections were both greatly facilitated by the Government of Chile, to which Easter Island belongs, who gave the most generous instructions to their representative on the island. After the death of M. Watelin, M. Lavachery assumed responsibility for the archaeological work, while M. Métraux had charge of the ethnographical and linguistic investigations. A report on the results of the expedition was published in the *Bulletin des Musées Royaux, Bruxelles*, May–June 1935, no. 3, 50–63; July–August, no. 4, 81–90.]

FEW places in the world have given rise to more fantastic speculation than this volcanic island, 70 square miles in area, lying in the Pacific Ocean, lat. 27° 10′ s., long. 109° 20′ w. Actually the so-called 'mysteries of Easter Island', or rather the explanations which have been offered, are not the work of trained men of science. It is natural that the huge statues, standing erect as they do in a naked landscape against a background of black and yellow, should have appealed to the poetical imagination. But those who wish to face with candour the problems presented by certain parts of the world

may well be annoyed when the poets' lyrical love of mystery becomes the starting-point of speculation. The best students of Easter Island have always told us that it was Polynesian and could only be explained by Polynesia.[1] The evidence that we have now obtained is merely an addition to what was already a formidable pile. Nevertheless we expect that before long others will come forward again with tales of a lost continent of Lemuria, submerged beneath the waters of the Pacific; and that Easter Island is one of its peaks, peopled with Lemurian idols!

For geologists are in complete agreement upon this point. If a Pacific continent existed, it was long before the advent of man and in a part of the southern ocean far removed from that in which the gaunt cliffs of Easter Island confront the unceasing assault of the waves. It is surrounded by vast ocean depths which occur in the expanse of 2500 miles of ocean separating the island from the American coast on the east and from the nearest land 1750 miles to the west, namely the Gambier Islands. Easter Island is a volcanic island, and a lofty one, like the Marquesas and Hawaii, in contrast with atolls and coral islands which are low-lying. If one could denude such islands of their dense coverlet of mango-scrub, bread-fruit trees, bamboo and cocoa-palms, drain the springs, and cover them with a growth of yellow herbage—then such an islet as Hivaoa of the Marquesas will come to resemble Easter Island.

It is the bareness of Easter Island, the result of its colder climate and exposure to the four winds of heaven, which has given birth to these misconceptions. The idea of Polynesia does not fall in with a barren rocky landscape, monotonous pampa or a pale sun incessantly obscured by rain-clouds.

These talkative Pascuans,[2] like naughty laughing children, whose language and appearance is Polynesian without a shadow of doubt, can no longer be denied those ancestors who carved the notorious statues, engraved the puzzling symbols of Rongo-rongo and set up round the island's coast all those innumerable monuments (actually 184).

At what date was Easter Island first settled? There are excellent reasons for believing that it was between the 12th and 13th centuries of the Christian era. We have certain traditions relating to the peopling of Hawaii and New Zealand. The Polynesians established themselves there at the end of their migrations between the 11th and 13th centuries.

[1] Mrs Scoresby Routledge, *Mystery of Easter Island*, 1919.

[2] We may well adopt the English equivalent to avoid the clumsy 'Easter Islanders'. Translator.

Considering the remoteness of Easter Island, it is reasonable to suppose that it was peopled about the same time. The approximate date of the colonization of this island is, however, based upon the list of the Pascuan kings. This list has been narrated to several observers ; the most complete is that of Thompson[3] who obtained it from an informant who was a survivor of the pagan period. One may assume a length of twelve years for the reigns of each of the 57 kings in the list. Maurata, the last Pascuan who was certainly regarded as a king, died in 1864, as a result of the Peruvian slave-raids. Calculation gives us exactly the beginning of the 13th century.

But how can one account for the achievement of such a long journey ? The Polynesians possessed vessels that could face the open sea ; they were capable of taking sometimes more than a hundred oarsmen and passengers. Further, they put to sea in squadrons. The canoes kept just as far apart as was possible without losing sight of each other. At night they came together. By thus distributing themselves over the surface of the sea they were able to discover even the smallest islands. Some canoes were lost, but there were enough to ensure that some should reach their objective. Navigation was by the stars, according to the direction of ocean currents and as the wind allowed. But in the Pacific there are regular winds in each season.

Whence came the Pascuans ? Every indication points to the Gambier Islands. The similarity of the Mangarevian and Pascuan languages is a valuable clue. Then the Gambier Islands contain ancient monuments which call to mind the *ahus* more than do any of the other *marae* of Polynesia. Father Honoré Laval, in an unpublished account[4] giving valuable information about the ancient culture of the Gambier Islands, speaks of statues resembling those of Easter Island. Finally, the Gambier Islands are those which are nearest to it on the west. The Polynesians probably found Easter Island devoid of monuments and uninhabited ; but this statement lacks proof.

The present Pascuans would appear, then, to be the direct descendants of the architects and sculptors of the ancient monuments. Proof of this is to be found in a comparison of these monuments with those of other Polynesian islands. One must also cite the traditions current

[3] A paymaster of the American navy, and the author of a short archaeological account which, considering that it was based merely upon a visit of eight days, is remarkably informative and full.

[4] This will shortly be published, through the agency of my Swiss colleague Alfred Métraux, by the Bishop Museum, Honolulu.

PLATE I

STATUE OF HOA HAKA NANA IA, EASTER ISLAND, BROUGHT HOME BY H.M.S. TOPAZ IN 1868

Ph. O. G. S. Crawford

facing p. 56

FACADE FACING SEA, AHU OF ANAKENA, EASTER ISLAND

The huge blocks are worked only at the joints

PLATE III

FALLEN FEMALE STATUE, ON AHU OF ANAKENA, EASTER ISLAND

PLATE IV

VOLCANO OF RANO RARAKU EASTER ISLAND SHOWING STATUES BELOW QUARRY

PLATE V

STATUES AT THE FOOT OF THE VOLCANO, RANO RARAKU, EASTER ISLAND

PLATE VI

STATUE SHOWING TATTOO-MARK ON CHEEK, RANO RARAKU, EASTER ISLAND

ROCK CARVINGS AT ORONGO, EASTER ISLAND
On the left is debris of the hut destroyed in 1886 to obtain painted tablets now at Washington

at the time of the first contact with white men, in which the names of sculptors and of their direct descendants were mentioned.

But there are also certain obvious facts of a commonsense kind. Many of the traditions relate to the construction of *ahus* at a very recent date. Now the statues were merely accessory to these burials—the images of ancestors set up there. If the monument is of recent date, that which adorns it will naturally be so too. Then again, the evidence of the first foreigners to arrive is in agreement; the *ahus* were in living use at the end of the 18th century and were seen by Gonzales and La Perouse. We collected traditions reporting that ceremonies were held there still during the 19th century.

There is no evidence of the existence of *two* cultures. Up to quite modern times, when the *ahus* were being made and used, the rites and ceremonies centreing round Motunui and Orongo[5] and the great god Maké Maké continued to take place. The last bird-man was drawn, according to Thompson, in 1880. It may be recalled that the house of the bird-man, the tomb reserved for him, was inside the *tapu* surrounding the quarry whence came the statues and where the oldest still stand. This is presumptive evidence in favour of a close connexion between the cult of Orongo and that of ancestors. Perhaps sufficient importance has not been attached to the fact that Orongo contains breccia sculptures from Rano Raraku,[6] and that it is from Orongo that there came the most perfect example of the typical Easter Island statue, that at the British Museum (PLATE I).

Take on the other hand all those manifestations of the plastic skill of the Pascuans—the sculptures on stone and wood, the designs of the rock-carvings and tablets, of the rock-paintings and tattoo-marks. The technique varies with the raw material, but the uniformity of style is indisputable.

The abrupt end, as it seems, of the activities of Rano Raraku has been invoked both by the adherents of the theory of an age-old lost civilization and by those who favour the idea of a dual Pascuan culture. But the arrest of activity can be explained by simple, almost contemporary, causes. The exploitation of the volcano was controlled by the clan of the Tupahotus, and, as everywhere in Polynesia, by a group of specialists. It required only a war to partially destroy the specialists—

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[5] An islet and village situated to the west of Easter Island.

[6] A volcano in the eastern part of Easter Island. On its slopes is the quarry where the statues were hewn.

and tradition tells of many wars at the beginning of the 19th century. An epidemic imported by the whalers might equally be responsible ; today each vessel that arrives brings some malady to the Pascuans. Finally, the Peruvian raids (1859–61) are traditionally reported to have given the coup-de-grace to the class of *maoris* (experts).

The fact that in 1886 the Pascuans had already forgotten how and why their activities had been brought to a close, as well as other facts about their culture—such as how the statues were transported, and the meaning of the tablets—is no evidence of the antiquity of these facts, nor does it justify an attribution to another culture. For we have seen these same Pascuans refusing to admit that the stone adzes could have been used to work wood ; while it is certain that before 1860 iron must have been very rare in the island, and that their immediate forebears must necessarily have worked wood with the aforesaid adzes. On the other hand they freely admit that adzes and stone chisels were used to work the two kinds of andesite of which the statues, bols and house-stones were made. By a curious inversion the Pascuan regards wood as being harder and more difficult to work than stone, so easy to fashion is the stone of this island. This argument[7] can be used against those who put forward the alleged difficulty of carving igneous rock as a reason for attributing them to a race more skilled, more strong and gifted with better implements than the Polynesians.

But to return to the first Polynesian colonists. Very probably the fauna and flora of Easter Island were extremely restricted. But following a custom common in all their migrations, they would have taken with them plants, seeds of the most useful vegetables, rats and chickens. They colonized the island, and their first settlements were at Anakena on the north coast and at Arahanga on the south. They set about conserving rainwater, for Easter Island has no springs. At the same time they learnt how to protect the crops against the continual winds. They were familiar with certain crafts which they hold in common with all Polynesians—the making of cloth from mulberry bark (tapa) and the working of wood and stone. The latter craft differs only from that found in the other Polynesian islands in respect of the size of the monuments. The abundance of easily carved stone was the sole predetermining cause of the Pascuans erecting on their island the largest statues found in the islands of Oceania.

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[7] Unfortunately, however, the mystery-mongers are not as a rule open to reason. Mystery is their religion.—Translator.

The technical skill of the former inhabitants is seen also in the manufacture of implements and weapons of obsidian, and of fish-hooks of stone and bone. These last were made with human bone, for man was the only mammal available with bones large enough. The Pascuan writing on wood shows their skill and taste. There have been found a large number of rock-paintings and engravings, the former magical, the latter merely trial-pieces.

The Pascuan house, when it is above ground, shows many technical analogies with the Hawaiian house, which, like it, is roofed with tufts of grass set on a framework of boughs. Whenever possible the Pascuans settled themselves in artificial caves or holes in the ground which provided a less precarious shelter in war and against thieves. The fowl-house was built on the same principles.

The Pascuans were tattooed, and on feast-days they painted their bodies with appropriate emblems.

Ten family-groups or clans divided up the island between them. The king belonged to the clan of Miru. His place of residence changed, and his rôle was indeterminate. Many taboos, notably in the matter of food, isolated him from Pascuan life. He did not engage in the wars which often broke out between the clans of the west and north and those of the east (Kotuu against Hotu Iti). He presided over the experts in *rongorongo*, the repository of ancient traditions, genealogies, etc. They used tablets (Kohau rongo rongo) engraved with signs as an aid to memory. The signs of *rongorongo* were the object of organized teaching.

The Pascuans practised a form of double inhumation. The body was exposed on the *ahu* until the flesh dried up or turned to dust. The bones were then placed in the burial-chambers. Sometimes the skull was preserved separately. There was a general fear of the spirits of the dead. Commemorative feasts were held in front of the tombs, where chickens were exchanged for a ritual purpose. The statues at the foot of Rano Raraku represent the dead. Several of them have tattoo-marks which were still used during the historical period. Later, the images of the dead also were placed on the *ahus*.

The Pascuans had a large number of gods, the chief of whom was Maké Maké. The same name appeared in other Polynesian mythologies. It would seem to be connected with the source of that which supplied the material needs of the Pascuans—cultivation and fishing. It was thus connected with the Marquesan Tiki whose mask it resembled in almost every detail. Maké Maké is the creator of birds. One of

the less obscure features of his cult is the indication, by means of birds, of a man[8] who probably represents the god, and who each spring gives place to another. Ritual feasts at which human flesh was eaten were a part of this cult, as well as also initiation ceremonies at puberty.

The end of the old culture was hastened by the arrival of Europeans, who revealed a new world to the Pascuans, a world totally different from their own. From that time onwards they lost without any effort both peace and the joy of life. Their restless spirit drove them to undertake the most savage warfare, which decimated them, ruined their culture and overthrew its monuments. Works of art were given up, traditions were lost, so that even the memory of their existence has perished. The whalers and slavers completed the task of destruction already well advanced. After being christianized the Pascuans became ashamed of most of their past history, and essayed, not without success, to remove all traces of it from memory.

[8] Tangata Manu—bird man. He was the first to get possession of the first egg laid by the bird *Manutara* (breast) in the island of Motunui (spring equinox).

Anglo-Saxon Vine-scroll Ornament

by Ernst Kitzinger

THE principal questions concerning the origin and chronology of Anglo-Saxon sculpture are still awaiting their final settlement. As there is so little external evidence for dating the monuments, it seems probable that only such a method as that so successfully adopted by Mlle. Henry in her book on Irish sculpture* can offer a useful approach to the problems they raise. This method implies a separate analysis of each decorative element, research as to its origin, and a comparison wherever possible of its various evolutionary stages with better dated examples in other arts or other countries. The arrangement of the different motives in series can be collated by the evidence offered when they occur on the same monument, and by this means at least approximate dates for single monuments can be obtained.

A complete knowledge of the material is the first condition for applying this method to English sculpture. In the Department of British and Medieval Antiquities of the British Museum, photographs are being collected on a very large scale under the direction of Mr T. D. Kendrick, in order to bring together as complete material as possible for a history of Anglo-Saxon sculpture, and especially of the Crosses which constitute the bulk of the monuments. The questions raised by this material can hardly be solved in any other way than that described above.†

In my attempt to study the principal decorative motives which have to be analysed separately I have chosen the vine-scroll as the most favourable one with which to begin. It is not only the most frequent but perhaps also the most important ornament, as it is the principal decoration of the monuments usually considered to be the earliest.

* Reviewed Antiquity, 1934, viii, 125–6.

† I am greatly indebted to Mr T. D. Kendrick, who so kindly and patiently acquainted me with the material and the problems of Anglo-Saxon sculpture. He and Miss Elizabeth Senior have also helped me in writing this paper in English and have made most useful suggestions. Also Dr Fritz Saxl has kindly given me an opportunity to discuss the subject with him and has thus rendered great help.

Moreover there exists already a very good account of the English vine-pattern in Dr Bröndsted's *Early English Ornament*.

Omitting discussion of the much-debated problem of the origin of the vine-scroll itself, I shall first consider a special question which is of urgent importance for the history of the vine-ornament in England, and the first one a student of late antique art is likely to ask—When and how did this ornament, so frequent in Roman and Early Christian art, find its way to England ? A general solution of this problem has already been offered by Bröndsted, Conway and many others, and these notes are only intended as a further small contribution.

We do not know how the vine-scroll came to play such an important rôle in English sculpture. Perhaps the symbolic significance of the vine[1] had a special appeal, but this would be difficult to prove, and would not help us to explain why on Irish and Scottish sculptures it is as rare as it is frequent on English carvings. Perhaps the reasons for its popularity are aesthetic rather than symbolical ; for the vine-scroll is not the only feature which distinguishes the English carvings from those of Scotland and Ireland. This classical motive is, in fact, only part of the general classical character peculiar to the English work. Thus, in contrast to the characteristic of a continuous minute and carpet-like surface decoration, especially frequent in Irish sculpture, the English monuments usually show a much stronger relation between architectural form and ornament, in proportions as well as in arrangement. This is particularly evident, for instance, in the Bewcastle cross, where the shaft is organically divided into a system of smaller and larger frames in which each ornament has its definite place in its own panel. Even where there is no such division in panels the arrangement of the ornament takes up the structure of the cross, following strictly its main lines, and it is set out clearly and regularly in a very definite plastic form, never giving the impression of mere surface decoration, but of tactile plant-, band- and animal-forms, attached to or carved into the body of the cross.

The scroll-ornament, therefore, seems to be but one indication of a strong classical tradition which is alive in the whole of this English sculpture. It is not certain whether this classical feeling in England is a survival from Roman times, or was re-introduced or at least revived during the Christian period ; but for our special motive, the vine-scroll, it should be possible to decide this question, as there is no

[1] John, xv, 1 ff.

evidence for its survival in England after the decline of Roman provincial art, while its subsequent appearance can easily be explained as a part of the great wave of Mediterranean influence known to have affected this country in the 7th and 8th centuries.

It is hardly necessary to enumerate the frequent records of travel to Italy undertaken by English ecclesiastics of that time or to remark upon the importance of these travels in the history of early English art. That the vine-scroll should be as much a result of the copying and modifying of Italian models as was the portrait of St. Matthew in the Lindisfarne Gospels, which is copied from the Esra portrait in the Codex Amiatinus, would be a likely hypothesis.

On the other hand there are also records of artists coming to England from Gaul; and there is a third possibility of direct connexion with the Hellenistic orient, whence came men like Theodore of Tarsus. Of course, all the western countries have taken elements of patterns from such oriental models as the ivory throne of Maximian in Ravenna or the Mshatta façade. Our real problem is whether the English sculptors took their motives of decoration direct from such oriental sources, or whether they received them transformed by later usage and perhaps indirectly through a western country like Italy or Gaul. Brönsted considers this question solved by tracing the history of the vine-scroll back to Eastern models. A. W. Clapham, however, in his book on *English Romanesque Architecture before the Conquest* (p. 64), has drawn attention to a chronological difficulty which arises if the English vine-scroll is derived directly from early Eastern prototypes. Brönsted assumes that Eastern, or rather oriental-hellenistic, vine-pattern was spreading over the whole Mediterranean between the 4th and the 6th centuries. Thus, even supposing that the vine-scroll did not exist in the West before that time, in the 6th century it was known in all Mediterranean countries, and the question remains to be solved which part of this large territory has produced the immediate models for the English ornaments which do not appear until a later period.

Therefore it might be useful to look, however hastily, through the material surviving in the various Mediterranean countries and to see what kind of scroll-patterns they have produced, and whether these ornaments have any connexion with the English examples. We should perhaps ask first of all which of the English examples clearly represent the foreign prototypes, for some of them do seem to be rather near to certain late antique types, whereas others can be better interpreted as local copies. Since, however, it is not always easy to decide

whether a pattern represents a relatively unaltered foreign type or a locally evolved variety of it, our investigation will perhaps be more methodical if we bear the whole of the English material in mind whilst we are searching abroad. Some of the English examples will then automatically be singled out as the nearest to certain kinds of foreign ornaments and suggest an immediate connexion with them.

In Gaul, as may be concluded from the abundance of examples in Esperandieu's *Recueil*, scroll-ornament was very common in Roman times. In the Early Christian period the southern French sarcophagi,[2] which are of 5th and 6th century date, and objects closely related to them, such as the columns of La Daurade,[3] continue to show examples. These scrolls do not reveal many resemblances to the English patterns. The most frequent English types, simple, undulating plants, with or without animals in the single volutes, seem to be extremely rare. There is more resemblance to those English examples which show a systematized and symmetrical arrangement, such as the panels on the Bewcastle cross or the face of the Aberlady shaft[4]; but, in general, the scrolls in Gaul are usually of a rather thin and abstract character and are very often enriched by capricious and artificial minor motives.[5]

Italy, too, seems to be somewhat unproductive of close parallels. Although here again scroll-ornament had been used since late antique times only one group of monuments comes into serious consideration for our purpose, the Ravennate 5th and 6th century sculpture. Scroll-motives are of frequent occurrence there.[6] The best comparison with our material—and especially such a scroll as occurs on the Ruthwell cross or Jedburgh slab (PLATE II B)—is offered by the sarcophagus of Archbishop Theodore in S. Apollinare in Classe (cf. PLATE I A). We have here the same fat scroll, forming very much emphasized circles which contain birds, animals, vine-leaves and bunches of grapes. In English ornament the real vine-leaf does not occur, and branches and animals usually intertwine in a much more complicated way. Nevertheless the resemblance in this case is relatively close. Many of the other Ravennate plant-patterns are much less organic, and show a

[2] E. Le Blant, *Les Sarcophages chrêtiens de la Gaule*, 1886.

[3] *Bulletin of the Metropolitan Museum of Art, New York*, 1922, p. 41.

[4] A. W. Clapham, *English Romanesque Architecture before the Conquest*, 1930, pl. 14.

[5] Cf., for example, Le Blant, pls. XXIV, XXXVIII, XLVI.

[6] H. Dütschke, *Ravennatische Studien*, 1909, figs. 4b, 29c, 35, 36d; A. Haseloff, *Pre-romanesque Sculpture in Italy*, 1930, pl. 36.

PLATE I

A, SARCOPHAGUS (6TH CENT.) OF ARCHBISHOP THEODORE IN S. APOLLINARE IN CLASSE, NEAR RAVENNA

B, PANEL FROM THE SARCOPHAGUS OF THEODOTA (720), MUSEO CIVICO, PAVIA (*after* Haseloff)

facing p. 64

PLATE II

A, COPTIC LIMESTONE RELIEF (5TH-6TH CENT.), METROPOLITAN MUSEUM, NEW YORK
(*from* Duthuit ' La sculpture Copte ')

B, CARVED SLAB, JEDBURGH
Ph. W. F. Taylor

A, COPTIC IVORY (5TH-6TH CENT.), CAIRO MUSEUM
(*from* Strzygowski, 'Koptische Kunst')

B, DETAIL OF BEWCASTLE CROSS (NORTH SIDE), FROM A CAST
By courtesy of the Victoria and Albert Museum

PLATE III

PLATE IV

A, COPTIC WOOD PANEL (6TH-7TH CENT.)
By courtesy of the Kaiser Friedrich Museum, Berlin

B, PANEL OF BEWCASTLE CROSS (SOUTH SIDE)
Ph. W. F. Taylor

PLATE V

A, DETAIL OF MOSAIC (A.D. 692) IN THE DOME OF THE ROCKS, JERUSALEM
(*from* Creswell, 'Early Muslim Architecture')

B, CROSS-SHAFT, ABERLADY, HADDINGTON
Ph. W. F. Taylor

PLATE VI (A)

A, DETAIL OF CAROLINGIAN IVORY, MUSEO PROFANO OF THE VATICAN, ROME
(*from* Goldschmidt, 'Elfenbeinskulpturen I')

PLATE VI (B)

B, DETAIL OF EASBY CROSS

By courtesy of the Victoria and Albert Museum

tendency towards a plain geometrical arrangement of single leaves or bunches of grapes in a framework of circles which have no longer the character of growing plants. Rigid frozen plant-forms and stiff heraldic animals become quite general by the second half of the 6th century and are only one of the many symptoms of decay and sterility which can be observed in the whole of Ravennate art of this and the 7th century.[7] The scrolls in the so-called Lombard art which can be followed in a series of dated monuments throughout the 8th century are from the first more like chains of thin metal rings, neatly designed in very low relief and each filled with only one or two flattened leaves or bunches of grapes[8] (PLATE I B). Nothing of this kind occurs in English art. These 7th and 8th century examples would, however, be the earliest which could be directly connected with the English ones : no date earlier than 670 has ever been seriously suggested for the earliest English monuments.

The only Italian examples, therefore, which show a close relationship with the English scrolls are too early in date for an immediate connexion to be postulated. Moreover they occur in just that period and place where there was the closest connexion between Italy and the East. The early Ravennate vine-scrolls certainly derive directly from oriental models,[9] and as none of the Italian transformations just observed seem of great importance for England, the similarity of the early 6th century scrolls to the English ones might be due only to the fact that similar oriental models were used later in English art. It is perhaps more promising, therefore, to direct our search towards Byzantium, Syria, and Egypt where these patterns might have had a longer survival.

In Byzantium itself, it is true, hardly anything has been preserved. Some students believe Maximian's ivory throne to represent the official art of the emperor's court ; but as long as there is no final proof of this assumption we only can regard it as an outstanding and almost isolated specimen of the best Hellenistic tradition in oriental art. It is here that we find in its best form the rich natural scroll, crowded with beasts, that is apparently the archetype both of Ravennate sarcophagi-decoration on the one hand and English scroll-ornament

[7] Cf. Toesca, *Storia dell'Arte Italiana*, I, 1927, p. 260.

[8] Toesca, *ibid.* fig. 213 ; Haseloff, *ibid.* pl. 44 ; Serra, *L'Arte nelle Marche*, 1929 p. 34 ; Haseloff, pl. 53. A late example of a more classical scroll (7th–8th century) is to be found on the wooden door of S. Alessandro in Parma, if the date given by Bröndsted (p. 29) is right.

[9] Cf. Haseloff, *ibid.* p. 34.

of the Ruthwell type on the other. But this genuine Hellenistic tradition does not seem to have furnished the *immediate* models of the English vine-ornament. Not only does the scroll on the throne differ too much from the English examples in the leaves, blossoms, and animals to be itself the original pattern of the Ruthwell and Bewcastle scrolls, but there are also considerable differences in style and in formal principles. In the English examples the scroll itself and its undulating movement plays a much more important part ; it is emphasized by an almost entire omission of leaves and other details, which are allowed very often to conceal the main stem in the oriental example. The uninterrupted growth of the stem is made still more evident by the fatness of its form and it is then complicated by the winding and interlacing of the stem with itself and with the animals and birds. In contrast to this the scroll on Maximian's throne, when examined in detail, shows itself to be very simple in its arrangement ; its leaves, bunches of grapes, and animals being merely juxtaposed in every bay, and the baroque impression it gives is entirely due to the effect of light and shadow on the rather crowded surface.

But in certain groups of oriental monuments this illusory effect gives way to a more plastic and elaborate style, without, however, becoming so rigid and plain as in later Ravennate art. I do not insist on great local differences of vine-scroll decoration in individual eastern provinces ; but it does happen that most of the material has been preserved in Coptic Egypt, and the Coptic series of sculptures may be used to demonstrate that some of the essential features of English plant-ornament existed in oriental art in general.

I should like to show these similarities by a few comparisons (cf. PLATES II–IV), though I do not pretend to be able to produce the immediate models for our vine-scroll types. In Coptic art we find quite different kinds of plants from those used in England, either long fan-shaped fringed leaves or real vine-leaves alternating with bunches of grapes. In most parts they are very regular and often schematic in their arrangement, and the relief is deeply undercut ; but they can often, nevertheless, be compared with the English versions as examples of that middle stage of development lying between the naturalism of the chair of Maximian and the rigidity of the later Italian scrolls. The fat round, almost inflated, plant and animal forms on the New York limestone relief (already cited by Conway in connexion with the English scrolls[10]) seem to have a more than accidental similarity to a scroll like

[10] *Burlington Mag.*, 1912, p. 195.

that on the Jedburgh slab, which is only a cruder version of the Bewcastle and Ruthwell animal-scroll (PLATE II A–B). A complicated intertwining of branches which we found typical for English scroll patterns is also to a certain extent a characteristic of the Coptic slab ; it is however much more developed in the English example, where every form is inspired by its own life and encounters other just as active forms. A real game of hide-and-seek is here being played between plant- and animal-forms, illustrating a—perhaps especially English—predilection for dramatic interplay. A hint of it, however, can indeed be found in Coptic art, and it is this activity of the plants to which I wish to draw attention by the comparison of a Bewcastle panel with a Coptic ivory on PLATE III A–B. The third comparison (PLATE IV A–B) shows that in addition to the freely growing plant, the regular panel-arrangement of the sides of the Bewcastle cross also occurs in Coptic art.

From these comparisons it may be concluded that there are at least some points of stylistic relation between Coptic and English scroll-patterns, whereas very few were offered by the Gaulish and Italian examples. We have, therefore, some reason to believe that the English got their models *directly* from the East.

There is one argument to be brought forward against this view. Most of the Coptic sculptures and especially those which still betray a strong Hellenistic tradition are usually assigned to the 6th century, like the Ravenna example,[11] and the work seems to have rapidly decayed after this, the few monuments of the later 7th and 8th centuries showing the art at its end. Thus even if the earliest possible date for a work like the Bewcastle cross is adopted, there still remains a gap between Coptic and English art. There is, however, in the East a group of non-Coptic monuments which belong to the decisive period, the later part of the 7th and the early 8th century. We do not know whether these are the products of an Asiatic or of a Syrian tradition, for there is hardly anything earlier with which they may be compared, but these monuments do at least show that there was a current of Hellenistic art still alive in the East about 700. Here I have in mind the mosaics of the Dome of the Rocks in Jerusalem (691 A.D.)[12] and of the Great Mosque in Damascus (705 A.D.)[13] To the same group of monuments belongs, so it is now almost generally believed, the Mshatta façade,

[11] Cf. the dates given by G. Duthuit, *L'Art Copte*, 1931.

[12] Cf. M. v. Berchem in K. A. C. Creswell, *Early Muslim Architecture*, I, 1932, p. 152. The scrolls are part of the mosaics which bear the dated inscription.

[13] Creswell, *ibid.* p. 230 and pl. 36 ff.

which has often been compared with English ornament though it is perhaps of less value for our present purpose as it is slightly different in style.[14] The mosaics of Jerusalem offer the closest comparison for they show a type which is very general in English art and is not so common abroad as might be expected, namely, the simple plain scroll with a grape or a leaf in every volute and usually a couple of leaves in the remaining spandrils. We can see from PLATE V how similar these Syrian and English scrolls are, both as regards their type and also their even and wide distribution over the surface.

Thus it seems that oriental art not only offers the greatest possibility of stylistic comparison with the English ornament, but also approaches it most nearly in point of date. Only in oriental art does classical, naturalistic scroll-decoration seem to have survived long enough to be directly connected with our English material, and it seems likely that, without the intervention of a western country, it was the source of some of the most important English patterns. In other words, if we consider the chronological point which, as we mentioned above, was neglected by Bröndsted, we still come to a result similar to his. Although the question of the original creation of the vine-scroll cannot be regarded as identical with that of the special models for the English scrolls (as the English examples do not appear until a time when this ornament had certainly spread over the whole Mediterranean) we still find the East to be the most important source. The answer is the same although the question was different. And there is another difference : whereas in Bröndsted's discussion of the origin of the vine-scroll Eastern influence stands for conventionalization and stylization, in our study of the survival of the vine-scroll in the 6th, 7th and early 8th centuries the East is important as preserving hellenistic features which are fading out in the West very quickly. That is a most striking characteristic also in certain other groups of contemporary monuments in the Eastern Mediterranean.

This does not, of course, give us sufficient evidence for the exact dating of those English examples which have been compared with their oriental sources. The models could have been imported in the middle of the 7th century just as easily as in the early 8th. But it is rather unlikely that they were brought to England much later than that, for it is difficult to find any possible later prototypes even in the oriental hellenistic world.

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[14] Cf. Creswell, *ibid.* p. 390 ff.

Comparison with oriental art has provided us with a starting point, though a vague one, for the history of the English scroll pattern. The question arises, however, whether it really suffices to find one such source for the English vine-scroll. Can the whole variety of English patterns be derived from one hypothetical late 7th or 8th century influence? Can all the vine-scrolls that are near to late antique originals be regarded as contemporary, and can the whole English material be arranged in one chronological sequence on the assumption of an increasing deviation from the foreign models? Bröndsted's system of development, certainly right in its general line, perhaps over-simplifies things a little in taking this hypothesis for granted. Some of the oriental models may not have come to England before the earliest ones had either ceased to interest, or had been entirely transformed by local artists.

Nevertheless, even if we suppose that this oriental influence was confined to a very limited space of time and that it was the main source of English vine-ornament, some patterns might have come from a western late antique source unknown to us, or they may also belong to a later renaissance. We have, therefore, first of all to group with our oriental models all the English sculptures which can be definitely explained as copies or varieties of these types; in doing this it will become apparent that some decorations do not fit in at all with them, but seem to have independent models. These models, may, of course, have come from similar sources, and our failure to find adequate comparisons for them may only be due to the fact that so little oriental material has been preserved. But they might also derive from a different source, and if they too suffered the usual fate when imitated and transformed, then the system of development may become more complicated, though perhaps more closely related to historical reality.

A systematic grouping of the whole English material cannot be undertaken here and I only wish to add in conclusion a few remarks on this task, which should follow in the methodical study of the English scroll-ornament.

The examples which we were able to relate to oriental-hellenistic patterns actually do represent leading types which occur again and again on English monuments; the animal-scroll of Ruthwell and Bewcastle, the panels of Bewcastle (one of which has a ' double scroll '), and the simple scroll of Aberlady, have evidently been copied many times. It is not necessary, for instance, to assume a different source for the animal-scroll of the Rothbury or the Otley cross-shaft, or for the

single scroll of Spital. But we have to remember that there are in addition a few other scroll-ornaments of entirely different design: the well-known little Hexham slab for instance must have a model of its own, about which we do not know anything, unless we compare it with certain Mediterranean pavement-mosaics.[15]

The real difficulty lies in those cases where it is doubtful whether a new model was used or an old one modified. For we do not know how much to allow for the freedom and originality of the English artists.

What we know about typical English features should, however, be of some help. The scroll on Acca's cross in Durham, for instance, which seems so obviously to represent a type of its own, is perhaps a peculiarly English variety of the Bewcastle double-scroll already compared with it by Lethaby. In no other country can there be found anything so complicated and sophisticated. The Bewcastle panel shows the same elements, and perhaps they are only transformed and exaggerated here in accordance with that taste for complication which we found in English ornaments before, the branches being treated like wires and twisted and interlaced in a highly artificial way.

Thus a scroll which at a first glance seems to represent a type of its own might be found to derive from a well-known model. On the other hand a scroll-ornament which represents roughly the Ruthwell or the Aberlady, or any other 'oriental' type, may still have come from a different source. We put those few examples at the beginning not as headings under which the English material could now be distributed, but as those English ornaments which show the closest stylistic relation with late antique tradition. We cannot assume that a vine-scroll is a direct local imitation of our one source, unless the stylistic tradition has been followed or transformed logically. In most cases this is very difficult to decide, and I shall give only one example which seems clear to me, instead of many doubtful ones which I have in mind. On the Easby cross the Ruthwell animal-scroll appears again. Yet it is very difficult to imagine the Easby scroll to be a copy or a local modification of this type, as it has a peculiar, thin, and elaborate style. This style seems to me most closely related to that of Carolingian ivories (cf. PLATE VI, A–B). Easby should, in my opinion, be excluded from the relative chronology starting with the 'oriental' 7th and 8th century scrolls, and it seems to have its definite place in Carolingian art.

[15] Cf. Bröndsted, *ibid.* fig. 20 (Hexham slab) with fig. 4 (Jerusalem, mosaic) or with Peirce and Tyler, *L'Art byzantin*, II, 1934, pl. 115 ff. (Sabratha).

All such breaks in stylistic development should be pointed out, and possibly also the foreign influence which might have caused them and from which a new sequence of English copies and varieties may have originated. Perhaps in this way we shall find a few more dates for English vine-ornament, so that we might construct a chronological system on a larger basis. For it is certain that a full history of Anglo-Saxon sculpture will not be possible until the developments of all the types of decoration are studied and collated with each other.

The Cyclopean Walls at Tarragona*

by Julio Martinez Santa-Olalla

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If the description of the 6th century Massalian Periplus, preserved in the Ora Maritima of Rufus Festus Avienus,[1] does not refer to Tarragona, as almost all scholars agree with Professor Bosch Gimpera[2] in believing, then one can only say that to no other city of the Spanish coast can that account of its walls be applied with greater appropriateness.

Seldom does it happen, as at Tarragona, that the ancient walls retain intact throughout the ages the embodiment of history amid the modern life of the city, and nowhere else with such charm and grandeur as that of Cesse with its true Iberian atmosphere. Usually the huge blocks of the primitive cyclopean wall are overlaid with reconstructions and refacings of the Roman, Visigothic and Medieval periods and of the modern Spanish fortifications.

Of all the periods of construction we find most of interest in the lowest level, that of the cyclopean wall, upon which rests immediately the Roman wall, to which may have justly been applied Livy's term *Scipionum opus* ; this is the portion that consists of cushion-shaped blocks with Iberian characters engraved on them, though comparison with those known from coins suggests a date not far removed from that of Scipio, while elsewhere a later epoch is indicated.

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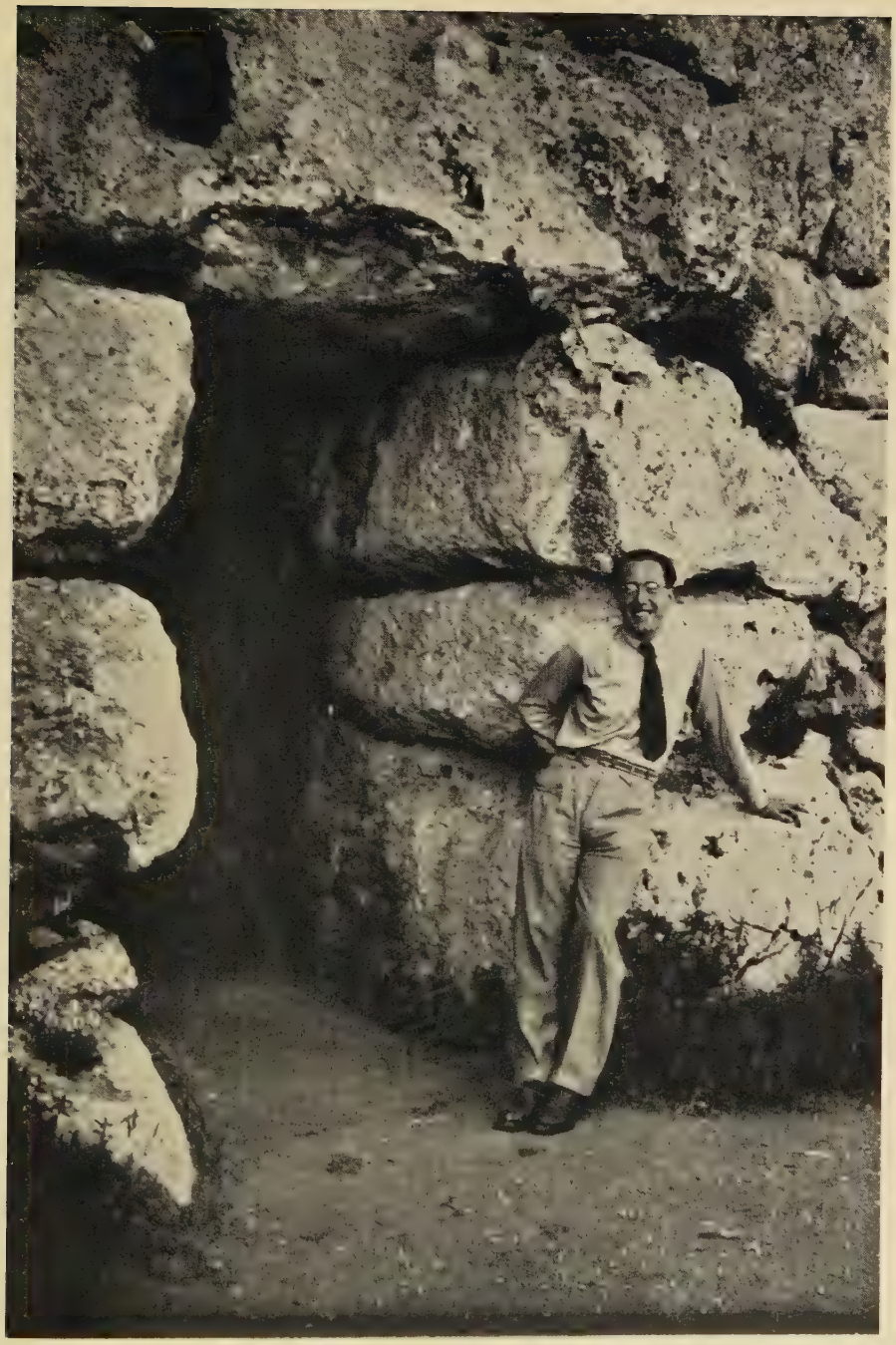
* Translated by the Editor, who thanks Mr A. W. Clapham, F.S.A., for first drawing his attention to the subject, and Mr W. J. Hemp, F.S.A., for one of the illustrations.

[1] Callipolis illa, quae per altam moenium proceritatem et celsam per fastigia subibat auras, quae laris vasti ambitu latere ex utroque piscium semper ferax stagnum impremebat.

[2] *Problemes d'historia antiga i d'arqueologia tarragonina.* Tarragona, 1925. The site has been placed between Tarraco and Salauris by W. Christ, *Avien und die ältesten Nachrichten über Iberien und die Westküste Europa's*, (Abhandlungen der K. Bayer. Akademie der W. I. Cl., Band XI, Abt. 1, München, 1865), and A. Schulten (*Fontes Hispaniae Antiquae*, I, *Avieni Ora Maritima*, Barcelona-Berlin, 1922) ; K. Müllenhoff identified it with Barcino (*Deutsche Altertumskunde*, Berlin, 1890).

PLATE I



GATE OF CAPISCOL, TARRAGONA
Ph. J. Martinez Santa-Olalla

facing p. 72

PLATE II

GATE IN SOUTH WALL, TARRAGONA
Ph. W. J. Hemp

TOWER OF ARZOBISPO, TARRAGONA, WITH SCULPTURE AT THE TOP, ON LEFT

Ph. J. Martinez Santa-Olalla

THE GREAT TOWER OF ALMANZORA
Ph. J. Martinez Santa-Olalla

PLATE IV

The cyclopean hedge[3] of Callipolis or Cesse surrounds the highest part of the hill on which Tarragona is situated, and has a more or less oval shape, the total circumference being 1250 metres (4200 feet). The state of preservation is particularly good in the portion called Falsa Braga, and it is good in general elsewhere except to the west, where it has disappeared and is only preserved below the surface; there the remains, though slight, are enough to enable the exact course to be determined with strong probability.

To this undoubtedly cyclopean hedge there was attached, according to certain 16th century accounts,[4] another much greater one which surrounded the hill of Tarragona reaching almost to the sea and having a total length of 4000 metres (13,113 feet) of wall of cyclopean workmanship. If that account is reliable—which only adequate investigation can decide—and it bears every appearance of truth, it implies that the city consisted of two walled enclosures, the smaller and higher being a true acropolis and the other corresponding to the city proper.

The workmanship of the walls is typically cyclopean. It consists of huge blocks often two metres (6½ feet) long and occasionally attaining a length of three or four metres (about 10–13 feet); they are almost unshaped, only roughly trimmed and generally of irregular contours, presenting an often barbaric ensemble that is increased by the typical picturesqueness of this form of architecture. Combined as this is with the rest of the facing, the whole acquires a certain rhythm and uniformity in spite of its variety. With the big blocks were mingled small ones to fill in the gaps. The wall was constructed of two superimposed courses of big blocks, united by small stones, earth and every kind of material collected indiscriminately. The total width is six metres (19½ feet) on the average, though there are sections which are both narrower and wider. The maximum height still preserved reaches to six metres in several places, and occasionally surpasses it.

There are six gates (PLATES I–II). Three are almost completely preserved—Portella in the southeast, Capiscol to the north and Rosario to the northwest. Two, San Antonio and Arzobispo, are wholly masked. The other, San Magin, has been destroyed. The gates have lintels consisting of huge blocks resting on others which form the jambs on either side. The height of the gates reaches a maximum of about

[3] I thus translate the Spanish ' recinto ' which corresponds to the French ' enceinte ' and the German ' Ringwalle '. The word is used in the west of England to describe the stone walls, usually of large blocks (' Giant's hedges '). TRANSLATOR.

[4] L. Pons Icart, *Libro de las grandezas de Tarragona*. Lérida, 1572.

$2\frac{1}{2}$ metres ($9\frac{1}{2}$ feet) in the case of the biggest, with a maximum width of 1.85 metres (about 6 feet). The length of the entrance-passages is exactly the same as the width of the wall, that is to say about 6 metres ($19\frac{1}{2}$ feet). The gates are straight and simple ones, like those at Tiryns,[5] and resemble those met with in walls of the Talayot culture[6] and in several Greek forts of the Iberian peninsula itself.[7]

The defences of Tarragona were partly completed by towers which served to strengthen the wall and to defend the gates against which they were set. The towers which remain standing are actually two in number, those of Capiscol and Arzobispo (PLATE III); since that of San Magin has gone, together with the accompanying gate.

The cyclopean walls of Tarragona give an impression of greater primitiveness than they actually have, owing to the rude workmanship of the limestone blocks, and above all to their colossal size. But if one examines the design of the wall, making due allowance for the ravages of time, one finds oneself in the presence of a highly developed system of fortification, with a well thought out scheme of defence—a monument which in both size and efficiency may well be compared with Helladic structures, especially with those of Tiryns and Mycenae.

The age and origin of this magnificent work was the subject of much discussion in former times, and it was absurdly attributed to the Hittites, Pelasgians, Etruscans and so forth. Today everyone is agreed about its Iberian origin,[8] except A. Schulten who has resuscitated the Etruscan theory[9] which he supports with arguments more ingenious than convincing.

The connexion between these walls and those of the Greek colony of Emporion have been recognized as a fact, which gives us a valuable chronological datum-point.[10] Tarragona cannot have existed at a date

[5] K. Müller, *Tiryns*, III; *Die Architektur der Burg und des Palastes*, Augsburg, 1930.

[6] J. Martinez Santa-Olalla, *De Prehistoria mediterranea. Las islas Baleares y su cultura prerromana* (Actas y Memorias de la Sociedad Española de Antropologia, Etnografia y Prehistoria, IX, 1930).

[7] P. Bosch Gimpera, J. de C. Serra-Rafols i A. del Castillo, *Emporion*, Barcelona, 1934.

[8] See note 1.

[9] A. Schulten, *Die Etrusker in Spanien*, Klio, 1930. The philological basis has been discussed by C. Battisti, 'Tarracina—Tarraco e alcuni toponimi del nuovo Lazio', *Studi Etruschi*, VI, 1933.

[10] Rhys Carpenter, *The Greeks in Spain*, Bryn Mawr, 1925.

earlier than the Phocaean colonization of the Spanish coast because of the total absence of any antecedents or indeed of the possibility of such. I regard it as at least highly probable, if I have not actually proved it, that ' cyclopism ' is not simply a technique common to the whole of the Mediterranean area, and for that reason explicable in each instance as an independent example of the phenomenon of convergence ; but that it represents a culture which was originally confined to about the 12th century B.C., having a wide distribution from Anatolia to the Balearics,[11] and that thereafter it was continued in Greek historical times, that it naturally influenced the Etruscans, and that it was last manifested in Iberia through the medium of the Greek colonies.

So brief and diagrammatic an exposition of facts and ideas which in good time I shall deal with at adequate length, may make the genealogy I have suggested seem somewhat arbitrary. But it should be borne in mind that the discoveries and work of the last few years have brought forward evidence of the large element of Helladic culture in that of the historical period of Greece ; and that there has been a clarification of the relations between the Ahhijava of the archives of Boghaz Keui and the Hittite Empire.

The case of the cyclopean walls is paralleled by the Tholos-tombs of Helladic Greece, Asia Minor, Etruria and South Russia,[12] which might have extended to the Iberian peninsula, as I have suggested,[13] and been included within the Roman epoch. These walls of the Iberian peninsula—of Tarragona, Gerona, Ampurias, Olérdola and others yet to be discovered—have none but a Greek model ; their resemblance to those of Mycenae and Tiryns is simply due to the fact that they are of barbaric construction. It is an atavistic resemblance, due not merely to technique but also to a similarity of culture in each case.

This type of cyclopean fortification, transmitted by the Greek colonists, enjoyed great popularity and was widely adopted in Spain, as my recent discovery in Andalucia demonstrates in a striking fashion.[14]

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[11] J. Martinez Santa-Olalla, ' Elementos para un estudio de la cultura de los talayots en Menorca ', Actas y Memorias de la Sociedad Española de Antropologia, *Etnografia y Prehistoria*, XIV, 1935.

[12] F. Schachermeyr, *Etruskische Frühgeschichte*, Berlin und Leipzig, 1929 (reviewed in ANTIQUITY, 1930, IV, 528, by Dr Randall MacIver).

[13] J. Martinez Santa-Olalla, review of G. Bonsor, ' An archaeological sketchbook of the Roman necropolis at Carmona ', *Actas y Memorias*, 1934, XIII, 247.

[14] Ib. id., 1935, XIV (' Fortificaciones ibericas ').

The walls and rectangular towers of La Almanzora[15] (PLATE IV) are faithful copies of those of Tarragona, although characterized by skilful workmanship and expert masonry which compares more closely with their immediate Greek models ; whereas the barbarousness of Tarragona, Gerona and Ampurias itself connects them with examples of the end of the Bronze Age. The use of a constructional method and system of walls and gates of a type, originally Greek but becoming later specifically Iberian, is very interesting in contrast with walls such as those of Cerro de las Cabezas de Fuente Tójar (Cordoba), with semi-circular towers, and those of Osuna[16] of a similar type and appearance.

The date of the walls of Tarragona cannot be placed, according to Bosch Gimpera and Rhys Carpenter, much after whatever date we assign to those of Ampurias : that is to say, the fortifications of Callipolis were made about the middle of the 6th century, when Emporion had not yet been founded by the Phocaeans (it was the Neapolis of the second half of the 6th century, which explains its omission from the Periplus of Avienus). At this date the splendid walls mentioned in the verses of the Ora Maritima already existed at Tarragona.

[15] The ruins are situated on a hill beside the road from Cordoba to Priego, at the confluence of the rivers Salabo and San Juan.

[16] A. Engel and P. Paris, ' Une forteresse ibérique à Osuna '. Fouilles de 1903. *Archives des Missions Scientifiques*, vol. XIII. Paris, 1906.

Some Recent Excavations in Egypt

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1. The City of Akhenaten. Part II. The North Suburb and the Desert Altars : [The Excavations at Tell el Amarna during the seasons 1926–1932]. By H. Frankfort and J. D. S. Pendlebury, with a chapter by H. W. Fairman. Fortieth Memoir of the Egypt Exploration Society. London : Egypt Exploration Society, and Oxford University Press, 1933. 42*s.*

2. Excavations at Ancient Thebes, 1930–1. By Uvo Hölscher. Oriental Institute Communications, no. 15. University of Chicago Press and Cambridge University Press, December 1932. 5*s* 6*d.*

3. Karanis : reports 1924–31. Edited by Arthur E. R. Boak. University of Michigan Studies, Humanistic Series, volume xxx. Ann Arbor : University of Michigan Press, 1933. $2.50.

A CONCESSION to excavate the site of Tell el Amarna was given to the Egypt Exploration Society in 1920, and with the exception of two seasons the Society has sent an expedition there every year since that date. Beginning with the central town site, at the point where the *Deutsche Orient-Gesellschaft* had left it before the war, the work of the first two seasons was confined to the southern half of the city, although it included several important outlying buildings of a non-domestic character and the ' Eastern Village ' of workmen's houses. The discovery of the North Palace in 1923 turned the attention of the excavators to the distant end of the site, leading them to the building of a new house from which to work and to the discovery of other official buildings at the extreme north of the bay, and a group of houses connected with them. These last have not yet been completely excavated.

A more important complex of mounds, in between that ' Northern city ' and the central part of the town with its royal palaces and great temple of the Aten, then claimed the Society's attention. This was the large area, clearly defined on all sides, except possibly on the west where it ran into cultivation, called by the excavators the North Suburb. This, with a brief chapter on the comparatively unimportant group of Desert Altars to the northeast, forms the subject of the Society's second memoir, on its excavations at Tell el Amarna.

The work described occupied four seasons, during which the staff varied from year to year, though a nucleus passed on on each occasion. During the first two years Dr Frankfort was in charge ; during the next two Mr Pendlebury. Each year saw the introduction of a new

architect to the site, but continuity was maintained in each change-over after the first.

It is a common-place that Tell el Amarna is *sui generis* as an excavating site in Egypt, in that it alone offers an opportunity to discover, in any sort of intelligible conditions, the remains of a pharaonic city. And though the temples, palaces and other official buildings of Amarna are of historical and archaeological importance, such types of buildings are to be excavated elsewhere ; while this peculiarity of the site makes the domestic buildings—in other words private houses of all sorts and conditions, whether considered individually or in ' town planning ' units—the most valuable material for the excavator. The Egypt Exploration Society's first memoir on the site dealt largely with the houses of the central town, and was the most important contribution to date on the subject of Egyptian domestic architecture ; but it also included accounts of public buildings. The writers of the present volume, with the advantage of being able to use its predecessor as a stepping-stone, and of being themselves virtually confined to a single closely-connected group of houses (nearly 300 all told), clearly had the opportunity to say the last word on Egyptian domestic architecture for some time, and have taken it.

The unusual opportunity called for a new technique, or rather an adaptation of existing principles of archaeological publication—in Egypt chiefly associated with the description of cemeteries—to a specialized area. The authors of the *City of Akhenaten I* were aware that their account of the houses dug by them must be followed by others dealing with the remaining houses in the main town area. For this reason they dispensed with an adequate index. Frankfort and Pendlebury in publishing a completed section of the site have put on record not merely the constructive results of their work, but, in condensed form, a statement of every scrap of material that could be used as evidence of any kind by future students of the site.

A brief introduction to the position and history of the North Suburb is followed by the longest chapter in the book, in which every house is discussed individually ; with the description of each house a note is appended of the most important objects found in it. These descriptions vary from several pages in length to a mere mention. On the whole they are always sufficient, and rarely waste words. Chapter three is an index of houses in numerical order—in the previous chapter topographical considerations dictated the order—with a complete catalogue of the objects found in each house attached to it. A few

remarks which could not conveniently be included in the foregoing are gathered together in a chapter on Architecture and Objects. With the exception of the inscriptions, which rarely affect the discussion of the houses themselves, and which are treated separately by Mr Fairman, this comprises the record of the work on domestic architecture and town planning.

The essence of the matter therefore is comprised in the description of individual houses, and it so happens that more than half the substantial results can be exemplified, and are, by the first two houses described. The chief problem of the Amarna house has always centred round the nature of the so-called North Loggia, the windows and the upper storey. It had become more and more clear of late years that the main source of evidence for solving these problems was the remains of painted plaster that could be recovered in a house. The lessons of the Society's first year's work at Amarna, together with the earlier results of Petrie and Borchardt, had already been incorporated in a chapter of the *Mural Painting of El 'Amarneh*, edited by Frankfort, before the present memoir was written. Both the houses referred to above had been discovered however before 'Mural Painting' went to press, and some of the deductions made in the new publication had been adumbrated in the other. All these had centred round the painted mud fragments from walls, windows, ceiling and rafters. With these results in their hands the excavators were able to make far greater use of the new material of this kind which came to light in a large number of houses in the North Suburb. The careful assembling of every piece of plaster is only surpassed, throughout this chapter, by the metaphorical assembling of fragments of evidence thus afforded, until the whole interior decoration and construction of the typical house has been restored.

Beside this eminently successful treatment, both in the field and on paper, of the essential problem of the site, the remaining information scattered about the book is of less importance; though some very interesting conclusions with regard to the site arise from the merchants' quarter on the north edge of the area. The North Suburb was on all the evidence a later development of the main town site and, even within it, it is possible to observe the sequence of building operations to some extent; even that it was unfinished, and large estates still in progress of construction.

The outstanding houses or estates—outstanding either for their plans or for points of construction—have been discussed in the *Journal*

of Egyptian Archaeology at the time of their excavation. Since houses were made to live in and not merely to lie down dead in, like desert graves, they offer far more scope for archaeological conjecture than does the ordinary cemetery publication ; and every excavator with imagination is bound to start hares which may not be run to earth within the limits of a review, if (to change the figure) he is given a fair-sized Amarna ground-plan of which to make a castle in the air. Further an archaeological memoir which is primarily a statement of discovery cannot find room to discuss all its discoveries. Even so a little more might have been said on a number of points : *e.g.* the unique ivory shabti (p. 54) ; the unique (as objects) truncated pyramids of limestone for bed-legs (we know of their existence from earliest times from paintings, reliefs, etc., but here was evidence of the reason for their use) p. 8 ; the bronze frog called a weight—but why the lead plug in the base ? (p. 8) ; there is no comment on the predynastic bowl of hornblende porphyry (p. 39) ; nor any discussion anywhere of the several skeletons found in the houses. Were they contemporary in all cases ? (p. 43, etc.) ; the colour but not the form of the columns is mentioned (p. 98). The restorations of these are presumably based on evidence from the Tombs ; finally Hatiay's lintel (pp. 63 and 109) surely calls for some remark on the use of what are generally regarded as funerary formulae and terms as part of the main interior decoration of a house. (Compare the inscription on the front door jamb(s) and elsewhere, of the house of the Vizier Nekht in the southern part of the city (*City of Akhenaten*, I, 144, 5), and the use of the epithet m3ᶜ ḫrw there with that of wḥm ᶜnḫ in the case of Hatiay).

The ancillary chapters are mostly in the nature of indices. A brief and scholarly account of the inscriptions by Fairman adds the names of a number of sources of wine to the known list, and incense as a new commodity recorded on jars from Amarna. The year datings confirm the accepted chronology and produce strong evidence for the date of the North Suburb, and with other inscriptional evidence support the contention made some years ago that Amenhotep III lived on into the 7th or even the 9th year of the reign of Akhenaten, and possibly if not probably at Akhetaten itself.

The Desert Altars (chapter V), originally planned by Petrie, yielded little or no information beyond what he conjectured as to their nature, but contained one of the inscriptions on which the above statement about Amenhotep III is based. The pottery has been retyped once again and corpora of beads and amulets, etc., begun. All these are admirably cross-referenced.

A few inconsistencies call for revision in the final volume on the site. The architect of the season 1926–7 (who was responsible for the planning of the most informing houses from the point of view of construction) would be more easily recognised by his friends if designated as ' H. B. Clark ' than plain ' Mr Clarke '. The large piece of plaster frieze which Frankfort believes (rightly it seems to me) to have fallen from the outside of the front door of House V. 37.1 appears in the restored section (pl. XVI) to have been placed over the inside of the door, if I understand the drawing. On page 44 evidence for Roman occupation of the site is referred to but not given. The implication (p. 98) that bricks made in a wooden mould are unusual is remarkable in view of other evidence, *e.g.* the Tomb of Rekhmirē‘, shawabtis' implements, etc., quite apart from modern practice, that this was the usual method. On the same page a new term ' north hall ' for what has in earlier chapters of the book been called ' front hall '=the old ' North Loggia ' (which is now moved to the first storey) is introduced with some confusion. Further the statement there and pp. 30 and 44 about brick walls having an air-passage do not tally. It is implied in the text (p. 99) that only that side of a house on which lay the entrance was whitewashed; but in the restorations (pl. XVII) both visible sides of the house are so decorated. The legend on the inset plan of the Desert Altars complex (pl. XXVI) is illegible, and neither it nor the large plan indicate which buildings are those referred to as 1, 2 and 3 in the text (p. 102).

The most fruitful source, both of small antiquities and of architectural material, of the Amarna school, outside Akhetaten, was the Palace of Amenhotep III at Medinet Habu, or more correctly at Malkata close by. It may well have been the immediate source of inspiration for some of the Amarna-type features of the palaces of Ramesses III in his great Amen temple complex at Medinet Habu, of which the Oriental Institute of the University of Chicago has undertaken a complete Architectural (as well as Epigraphic) Survey in the last ten years. The architectural survey necessitated prolonged excavations, but by the end of the season 1930–31 Dr Hölscher, who was in charge of the Survey throughout, had completed the excavation of Medinet Habu itself except for the mound in the centre of the west side of the Great Girdle wall.

The report 2 here noticed therefore sums up the final plan of the Temple and the units, such as the two successive palaces of Ramesses III, within its outer fortified wall. A quay was found outside the great eastern ' fortified gate ', and Dr Hölscher has some interesting remarks

on the probability of the existence of canals from the Nile to all the mortuary temples of Thebes. He is also able now to give us a completed picture of the famous ' fortified gate ' which he studied over twenty years ago in his monograph ' Die Hohe Tor '. He emphasizes the double nature of the building—the fortified base, and the lighter side of the upper storeys—for which he would use the term 'kiosque'. He is at pains however to argue that this was not the permanent harem of the king's ladies, who, he maintains, were housed in the palace. His architectural reasoning on behalf of the latter part of this statement seems stronger than his logic in denying the former. But in effect most people will be convinced that his views are right.

In a very brief survey, Dr Hölscher proceeds to sum up the results of his excavations as far as the later history of Medinet Habu is concerned. He traces the varying fortunes of the temple itself, and of the settlements of one kind and another, private houses, sanctuaries and tombs, that occupied its environments down to Coptic times and the cessation of all activities there with the Arab conquest.

The slightly irregular shape of the Temple of Medinet Habu at its northwest corner suggested to the excavators the presence of an earlier building in the vicinity. Subsequent digging resulted in the discovery of the remains of a temple built by Ai and usurped by Horemheb at his accession. An ostracon which appears to mention the official taking over of the temple by Horemheb in his 27th year is used by Hölscher to confirm the durations of the reigns of Akhenaten, Tutankhamen and Ai, whose highest known year dates he quotes as 18, 6 and 4 respectively. Thus they reigned (he argues) more than 17, 5 and 3 years respectively, and if we allow an average of half a year extra for each, we get a total of $26\frac{1}{2}$ years. Horemheb, as we know, counted his years from Amenhotep III since he regarded the intervening kings as usurpers, and from the foregoing arithmetic he could not have come to the throne till his 27th year. Substantially this argument is correct ; but there never was a year-date 18 for Akhenaten (see *City of Akhenaten*, II, 104) ; no account is taken of the overlap in the reigns of Amenhotep III and his successor ; and Smenkhkarē^{c}'s reign is neglected altogether (in fact he almost certainly reigned with his predecessor for part if not all of his own reign, so that this may make no difference to the calculations).* If Dr Hölscher considers that Horemheb reckoned

* I cannot find confirmation of the statement which has often been made that a year-date 9 has been found on a vase from the tomb of Tutankhamen. If this were the case, both Hölscher's computations and my argument which follows would require modification.

his regnal years ' from the death of Amenhotep III ' (p. 51 and again p. 53) his calculations are considerably out, for nothing is now more clear in this difficult phase of Egyptian chronology than that Amenhotep III lived well into the reign of Akhenaten, probably until the latter's 9th year. (See above, p. 82). This being so the interval between Amenhotep III's death and Horemheb's succession is, on Dr Hölscher's figures, (17–8)+5+3+1 [since the fraction of the 9th year for the end of Amenhotep III's life cancels out with the fraction of the 18th year of Akhenaten] years = 18. If we add a possible 1 year for Smenkhkarē^{c} we are still 8 years short of the total required to make Horemheb's ' year 27 ' his first year on the throne.

On the other hand if we suppose that Horemheb reckoned his regnal years from the *accession of Akhenaten*, the minimum durations of the reigns of Akhenaten, (Smenkhkarē^{c}), Tutankhamen and Ai occupy almost exactly the required interval of 27 years. Dr Hölscher is almost certainly right in taking this to be a record of Horemheb's official adoption of the temple, and as confirmation of the accepted duration of these 18th dynasty reigns.

For purposes of comparison permission was obtained from the Service des Antiquités to excavate the Ramesseum once again. The result was some very interesting plans, especially that of the palace of Ramesses II on which the first of Ramesses III's at Medinet Habu had clearly been modelled. Further, within the Temenos of the Ramesseum was discovered, close up against the north wall of the main temple of Ramesses II, a small one of Seti I.

The report was published in December 1932 and is an admirable example of the Oriental Institute's method of bringing out punctually scholarly accounts of work done in the field, with sufficient information to satisfy general scientific needs as well as the layman's curiosity, and yet without any loss of interest to the subsequent definitive publication.

The Karanis Report 3 for 1924–31 also anticipates, I imagine, a full-dress publication in one or more volumes to appear when the site has been completely excavated. But it differs from the Theban account just noticed in that those units of excavation at Karanis which are here dealt with are discussed as fully as could be wished, and will require no further treatment unless future excavation should make it necessary to modify conclusions at any point.

Two areas are described. The first, the North Temple, was excavated in 1924–5, when Dr Boak, who writes this chapter, was a

member of the expedition. The temple was planned two seasons later by Mr H. Falconer, and reports by Messrs. J. L. Starkey (who was Director of the Michigan excavations from 1924–26) and S. Yeivin (who was on the staff for the first four seasons of the dig) have been used in the present account. It is not a very important building. Founded not earlier than the first century A.D., it is of local limestone, of Egyptian type as transmitted by the Ptolemies, and apparently the first temple on that particular piece of the site. It was abandoned about the middle of the third century and used as a dump. It was still buried when Grenfell, Hunt and Hogarth worked at Karanis in 1895 and 1900. Less than a dozen objects were found during the excavation, and these will be thought by some to be barely sufficient to justify the provisional ascription of the cult, for which the temple existed, to ' Souchos in the form Soknopaios combined with that of Zeus Ammon Sarapis Helios, and possibly that of Isis '. In fairness to the author, however, it must be said that his is a statement of possibility only.

Mr Enoch E. Peterson, who has been in charge of the excavations since the season 1926–27, had, in the second area discussed, a far more complex piece of work to deal with. This was the precinct of the South Temple, that of Pnepheros and Petesouchos, first noticed by Grenfell, Hunt and Hogarth in 1895 and mentioned in *Fayum Towns*. Although these scholars cleared part of it, its systematic excavation was left till the University of Michigan undertook it in 1929–30. The excavation of the temple itself, a limestone structure on the site of an earlier shrine probably of mud-brick, presented little difficulty. But within the temenos were houses, chiefly connected with the temple service, but others also, besides gateways, a fore-court and Pylon, all to be disentangled and reduced to four main layers of remains, corresponding to four fairly closely defined periods. These periods cover the first to the early fourth centuries A.D. The temple, though confined to these, is again on the Ptolemaic model.

The difficulty in planning the houses lies in the fact that houses have as varying lengths of life as their owners. The change over from one layer to another may be marked in some cases by the demolition of the earlier house to make room for the building of a new one ; in others by the use of six feet of the earlier walls as the foundation for the later ; and in others again by a few reconstructions within an existing building which may then remain intact for the whole succeeding period. Compared with a single-period city like Tell el Amarna, Karanis is a nightmare. Mr Peterson's account is necessarily highly technical—and the

houses presented little of the human interest discoverable at Amarna—but it calls forth admiration not only for its lucidity, but also for the witness it bears to his acumen in the field. In the task of making these very complicated layers of building intelligible to the reader he has been splendidly assisted by his architect Mr I. Terentieff, whose plans and elevations are both essays in themselves, and a delight to look at.

Two final chapters give reports on various remains found in other parts of the site during the years which fall within the scope of the report. Dr J. G. Milne discusses a hoard of 860 Alexandrian tetradrachms dating from 163–4 A.D. to 268–9 ; and another of 1074 minimi of about 430 which leads him to make some interesting comparisons between ancient and modern depreciation in currency values. Both hoards come from private houses ; and from a third such a second hoard of minimi, deposited about 410, and numbering 582 pieces, is catalogued by the late Mr A. G. K. Hayter with some account of the mints. He compares it with the hoards of fifth-century minimi found at Richborough Castle ten or more years ago.† Botanical and zoological reports by some six experts, chiefly of the University of Michigan, complete the book. These are confined to lists of the material examined and a few notes, but make an extremely valuable addition to the report on the eight seasons' work. The absence of rye among the cereal remains is noteworthy ; and of anything approaching the cucumber among the other fruits and vegetables. The domesticated animals are those we should expect, though here the camel is missing. An interesting point is made, that while ' the skulls and other bones came mainly from the courtyards attached to the houses, . . . most of the horns were found inside the houses themselves, where they perhaps served as ornaments '. The two wild animals, gazelle and hartebeest, are represented only by horns. Remains of the Nile crocodile and of a lizard ; of three species of fish (all of which appear to have been used as food) ; and of marine and freshwater shells were also identified. The last, found in the houses, ' apparently were kept as curiosities or as playthings for children '.

In the list of staff for 1926–7 D. Anthony Chubb should read J. Anthony Chubb.

† Second report on the Excavation, 1928.

Notes and News

MODERN RED-BURNISHED POTTERY IN GRAND CANARY

In 1913 I visited the cave-dwellers of Atalaya near Santa Brigida, about 7 miles from Las Palmas, Grand Canary, and obtained a number of specimens of red-burnished pottery which are now in the Pitt-Rivers Museum, Oxford. The technique of the manufacture of this ware may be of interest to excavators, who frequently come across it in southern and eastern lands. I understand that red-burnished ware is still made (by hand) in Rhodesia.

The caves of Atalaya are excavated in the top and sides of a small hill overlooking a deep ravine. Some of them have glass windows and wooden doors and are by no means uncomfortable inside. There are several potters in the village ; I saw the caves of three ; all are women. The raw clay is obtained from the bottom of the ravine. It is kept in lumps in an alcove in the side of the cave, and when required for use it is ground up with a round pebble from the torrent-bed, upon a flat stone. The ground clay is then sifted in a basket-sieve, and when required is mixed with water and kept in a heap by the side of the potter.

The raw material of which the red pigment is made consists of red volcanic earth which occurs at Cumbre. The rough lumps are ground up with a round pebble on a flat stone. When ground the rouge is sifted in a sieve formed of a piece of coarse cloth (or sacking) tied over the detached rim of a pot. When required for use the sifted rouge is mixed with water in the bottom of a broken pot. As far as I could make out the rouge is applied with the fingers. When finished the pots are dried in the sun, and later are piled upside down in a heap, mixed with dry brush-wood ; this is ignited in the open.

At Santa Lucia, a remote village at the south end of the island I obtained a large water pot from a store-keeper near the inn where I slept. It was actually in use, but the water was poured out and the pot sold to me. On the shoulder are unpierced lugs, and I observed that these were used by the women to steady the pots on their heads when returning from the well. In the mouth of the pot is placed a

saucer which floats on the water and prevents it from spilling. I was told that these pots were made at San Bartolomé or Tunte, a small village near Santa Lucia ; the type is common all over the island. The water kept in them remains refreshingly cool, even in the midday heat.

Some of the pottery in the Las Palmas Museum is of precisely similar ware, though the shapes are different. There are also examples of the clay figurine so common in Mediterranean lands and in the East ; and the clay pintaderas are another suggested link with the same regions.

The best account of the archaeology and anthropology of the Canaries is in Dr E. A. Hooton's book, *The Ancient Inhabitants of the Canary Islands*, Harvard African Studies, vol. VII, 1925.

O.G.S.C.

THE DISCOVERY OF BRONZE

The date and place of the discovery of bronze are both unknown. Bronze is an alloy of copper and tin ; and since the natural deposits of tin occur only in a very few regions, it is possible to narrow the issue down to one of these regions. In view of its very early occurrence in Mesopotamia it is natural to look for the source somewhere in that neighbourhood. Ever since I began to be interested in these matters I have been anxious to know more about those mysterious tin-deposits of Khorassan, vaguely alluded to by travellers. Here is the latest account (from *The Origins and Development of Applied Chemistry*, by J. R. Partington : see review in ANTIQUITY, 1935, IX, 502) :—

> ' The most attractive hypothesis of the discovery of bronze is that which locates it in Khorassan, in Persia (the Drangiana of Strabo). E. K. von Baer, starting from a vague report of the traveller Burns that tin was found in the country beyond the Bamian Pass (perhaps the Hindu Kush), requested the officers of the Russian army in the Oxus to see if any tin mines existed there. Prof. Semenov sent him a letter from one Ogorodnikoff, which he reproduces, stating that an inhabitant of Meshed, an official of the Khorassan copper mines, reported rich deposits of tin (as well as of iron, copper, lead and sulphur) 75 miles from the town Utschan-Mion-Abot, and the tin mine Rabotje Alokaband was 22 miles from Meshed. This statement was confirmed by the " manager of the Russian Merchants' Society in Chorasan ", and Ogorodnikoff himself saw tin wash-basins and dishes " of old native workmanship ", which the inhabitants represented as made from local tin. The information, it will be seen, was obtained in rather an indirect way, although the result is often quoted. Tin ore is said to occur also near Tabriz and at Astrabad ; it is not found in Russian Armenia, but is reported in the Kurbaba Mountains near Tillek, between Sahend and the River Axares, where it is associated with copper and hence probably in vein form ; also near Migri on the Axares, and in Hejenan. It occurs in Asia Minor at Kastamuni, but although tin ore was said to be found in

the Caucasus (Georgia), this is a mistake. If *aonya* in the Avesta is tin, the mines in the Paropamisus (Strabo's Drangiana) may have been worked at an early date.

'Although the supposed source of tin at Khorassan rests, as is clear from the above, on very insecure foundations and has been adversely criticised, it has been accepted by several authorities, and is perhaps the most probable so far suggested, although far too much super-structure has been built upon it by some archaeologists'.

Perhaps this copy of ANTIQUITY may fall into the hands of someone, in Iran, Turkmenistan or elsewhere, who can solve the problem. A visit to Meshed should settle the matter, and Meshed, though remote, is after all not very far from Baghdad nowadays. Will not one of our readers in Iraq or India make this problem an excuse for an unconventional holiday? (taking his camera with him). It is one of considerable importance in the history of human culture: for if these tin deposits are authentic, it may well be that this region is where the discovery of metal was made; and that is of course a landmark in prehistory. O.G.S.C.

SYRIA IN THE 3RD AND 4TH MILLENNIA

We quote below an extract from *The Bulletin of the American Schools of Oriental Research*, no. 60, December, 1935, pp. 3–5, omitting footnotes and a couple of passages of a technical character, and wish to acknowledge with thanks the permission readily granted for so doing. Professor Albright is reporting on the proceedings at the 19th International Congress of Orientalists held at Rome in September last; and he selects two papers read by Professor Dunand. He says:—

'In his first one [Professor Dunand] described the results of his excavation in the chalcolithic cemetery of Byblus (1931–2). This cemetery was found under the older Egyptian temple of Byblus, and must have been completely forgotten when the latter was first built, before the end of the Second Dynasty. Its date can hardly, therefore, be later than the third quarter of the fourth millenium (3500–3250 B.C.) and may be considerably earlier. The pottery (which the writer saw in June 1932) bears unmistakable points of similarity to the Ghassulian (*Bulletin*, no. 48, pp. 10 ff) and thus helps to confirm the now generally accepted chalcolithic date of the latter culture. The human skeletal remains are of special interest, since they were abundant and in part well preserved. The average height of the men was 356 cm. (5 ft. 2 in.), and the crania are prevailingly long-headed (in a few cases mesocephalic). As pointed out by Dunand, the physical type of these chalcolithic men of Byblus approximated closely to that of the mesolithic Natufians of Carmel, whose remains were recovered by Miss Garrod several years ago. It is also related to that of the Badarians of Upper Egypt, who flourished not later than *c.* 4000 B.C. Since the precise type of man in question survives only in traces, we are hardly justified in making any inferences with regard to the linguistic group to which it belonged. The

most plausible view is perhaps that it represents the basic stock from which the northeast African Hamites sprang.

'Dunand's second paper was even more exciting than his first one, since it dealt with a new script of the late third millennium. In 1930 he published a large fragment of a stone stela from Byblus, containing a new script, which resembled simplified hieroglyphs. Since then he has discovered a number of additional texts on copper in the same script, some of the new inscriptions being considerably longer than the one already published. The new texts are all incised in metal, and are hence linear; the number of separate characters now exceeds eighty, and the total number of different signs in this script can hardly be less than 120 . . . We can hardly be far wrong in considering the language of the new texts as Semitic . . . Dunand has been able to show that this script was in use before the destruction of the earlier Egyptian temple, about the end of the Sixth Dynasty, not later than the twenty-second century B.C. Since we have ample reason to believe that Canaanite was then the language of Phoenicia and Palestine, it follows that our new script was probably used to write an early form of Canaanite, even more archaic than the language of Ugarit (Ras esh-Shamrah). The inscriptions will be published by Dunand in an early number of *Syria*, after which we may attack the problem of their decipherment. If they are really written in Early Canaanite, we shall some day be able to reproduce the ancestral vowels as well as the original consonants of Biblical Hebrew.

'Dunand's view that this new script is the direct progenitor of the Phoenician alphabet is more questionable. It is true that he has found some two-thirds of the later Phoenician letter-forms among the linear characters of the former. Since the number of different linear-forms in the former is so great, however, any smaller degree of coincidence would be rather strange. Moreover, a survey of the present epigraphical situation in Palestine, where we now have a bridge thrown across the gap between the Proto-Sinaitic inscriptions and those of the Early Iron Age, shows that the true source of the Phoenician alphabet is to be found in the alphabetic script first discovered in Sinai'.

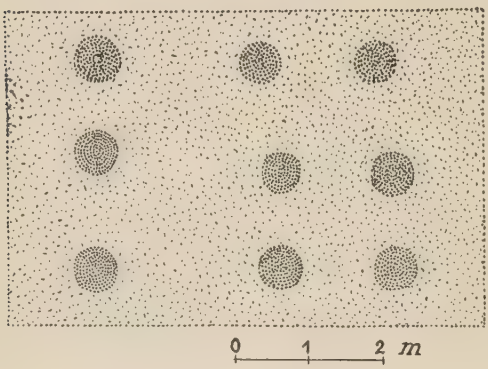
THE (BAND-KERAMIK) NEOLITHIC VILLAGE OF KÖLN-LINDENTHAL* (PLATE I)

The prehistoric village thus named lies in the 'green belt' surrounding Cologne. The definitive account of its excavation is to appear as volume XI in the series entitled 'Römisch-germanische Forschungen', published by the German Archaeological Institute.[1] The excavations were carried out by the Wallraf-Richartz Museum in Cologne between the years 1930 and 1934; and since the results are of international importance, it is desirable to publish the principal conclusions reached in the form of a short note.

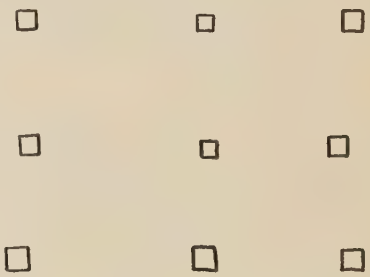
* Translated by the Editor.

[1] Werner Buttler und Waldemar Haberey, 'Die bandkeramische Ansiedlung von Köln-Lindental'. *Röm.-germ. Forschungen*, Bd. II. Berlin, 1936 (in the press).

It was decided from the outset to carry through the undertaking to completeness and finality, so far as possible. In the excavation of prehistoric settlements modern archaeologists hold the view that it is preferable to select a limited objective and to deal with it as completely as possible, rather than to make a few scratches in the soil and merely recover a few house-plans. We did not in fact lay bare the whole of the settlement-area at Köln-Lindenthal ; but the 30,000 square metres (35,880 square yards) uncovered have yielded so large a part of the village-plan that thereby the general appearance of the village may be visualized very clearly, and we can safely reconstruct the forms of individual houses, the chronological stages of the occupation, and the industries and social conditions of the inhabitants.



PLAN OF RECTANGULAR PILE-BUILT BARN, NEOLITHIC SETTLEMENT, LINDENTHAL



PLAN OF MAIZE-BARN, HUNGARY

Foremost amongst the structural remains must be set those numerous irregular habitation-pits (*Wohngruben*) which are so typical of the Danubian culture, and which occur again and again in its villages. An important fact was that, on account of favourable soil-conditions, the post-holes round the edge of the pits could be completely recovered, thus making possible the reconstruction here illustrated (PLATE I). The external shape of the huts was just as irregular as the shape of the pits lying within them. (This kind of building is called Kurven-komplexbau, which may be translated the ' curved plan complex '). Side by side with these pit-dwellings, and with many single pits serving a different purpose, occur others of rectangular plan which were used for industrial purposes. There are first of all smaller four-sided buildings, like the modern Balkan granaries ; and there are also lengthy

rectangular structures with many posts inside them which we regard as harvest-barns. Both types of structure are set on piles, with a raised floor. They were doubtless meant to enable the corn—whose ears were probably cut from the stalks in the traditional manner—to be spread on the platform of the barn after the harvest, dried and then threshed. This interpretation is confirmed by the location of the harvest-barns between village and fields. Opposite to them were the small four-sided structures scattered amongst the dwelling-houses of the village,

A MODERN MAIZE-BARN, HUNGARY

which as today in southeastern Europe might well have been used as storage-pits for winter supplies. This construction of barns on piles, so usual today almost everywhere in the world, thus goes back to the neolithic period, when our peasant culture was first established.

A restoration of the Lindenthal village at the last period of its existence therefore reveals a compact village community with buildings of many different forms. The settlement-area was protected by a palisade, bank and ditch, in which two entrances have been proved to exist. The village-site as a whole consists of an oval of about 180 by 220 metres (47,265 square yards) in dimension. The settlement

was again separated into two parts by a cross-ditch, one part containing huts and granaries, the other being a small uninhabited depression in whose deepest part we found a water-hole reaching down to water-level. It is to be inferred that in this portion was the cattlefold, and that the cross-trench was intended to prevent the animals from wandering into the village.

But the village did not always look like this. Soon after the excavations began we found an older defensive ditch that branched off and indicates two adjacent settlements ; and the investigation of the area shows that even these were not the oldest site. By means of numerous cross-sections and of a close examination of the abundant pottery[2] we were able to establish four periods. In the first were found a large number of harvest-barns belonging to a settlement that must have been situated some distance away. Then the settlement was removed further away from this group of barns, together with the houses and barns, and the whole site was finally surrounded with a palisaded trench. At some point of time this village must have been abandoned, and its inhabitants have migrated elsewhere, because the buildings of the next (third) period are strikingly fewer in number than those of the second. The third period cannot have been of long duration, and these people too must have moved away ; all the buildings belonging to it shows traces of burning. Lastly the site was occupied by a numerically strong group which covered the whole of the protected area. Its numbers can be estimated, from the number of huts, to have amounted to between two and three thousand persons ; the life of the settlement at a maximum of 300 years.

These conclusions, which represent only a small fraction of the total results obtained, were, and could only have been, reached by the investigation of a very large and homogeneous area. It is clear that amongst the Danubian peoples agriculture was already highly developed, because the harvest-barns are of a transitional form that indicates a long period of development. We have in the classical peasant culture of the Bandkeramik folk, so it now appears, the earliest tillers of fields in Central Europe. But the many settlement-changes at Lindenthal show that these peasants were still not wholly permanent settlers, but often changed their sites, like the precursors of settled communities in modern times. The reason is to be looked for in the industrial

[2] W. Buttler, ' Ein importiertes Hinkelsteingefäss aus Köln-Lindental und seine Bedeutung für die Chronologie der bandkeramischen Stile Westdeutschlands '. *Germania*, 1935, XIX, 193 ff.

conditions of the Danubian culture,[3] that was probably still incapable of plough-cultivation with its associated manuring and crop-succession. Thus the soil would very soon become exhausted, new fields would have to be enclosed and finally the whole community would have to migrate and seek a new home. In this way one can explain the whole land-régime of the various neolithic groups, amongst whom a continual shifting of the settlement-sites is to be noted. The period of the 3rd millennium B.C. appears then as a crucial point in the history of the peoples of Europe; in the neolithic period was being laid the foundations of that permanently settled peasantry on which all the later advances of civilization were based. WERNER BUTTLER.

STONESFIELD SLATE-TIPS (PLATE II)

We are indebted to Mr H. G. Dines of H.M. Geological Survey, for the following note on the Stonesfield slate-industry, to which we have added a concluding paragraph :—

The geological formation known as the Stonesfield Slate Beds occurs at the base of the Great Oolite. It is some 30 feet in thickness and consists of a variable series of sandy flags, oolitic freestones, limestones and ' slates ' or tile-stones. The slate-bed proper, known locally as ' Pendle ', is a layer, sometimes two, of fissile calcareous sandstone, seldom over a foot thick. This is found only in certain restricted areas in the north Cotswolds and at Stonesfield, between Charlbury and Woodstock, Oxfordshire.

Around Stonesfield the slates have been worked over an area of about two square miles, and the useful material is probably exhausted. There appears to be little authentic information regarding the early history of the workings. They were apparently active in the thirteenth century or earlier. In his *Natural History of Oxfordshire*, 1677, p. 77, Plot gives a brief but clear account of the methods of working. He states, ' . . . the Houses are covered, for the most part in Oxfordshire (not with tiles) but flat-stone, whereof the lightest, and that which imbibes the water least, is accounted the best. And such is that which they have at Stunsfield, where it is dug first in thick cakes, about Michaelmas time, or before, to lye all the winter and receive the frosts, which make it cleave in the spring following into thinner plates, which

[3] Waldemar Haberey, ' Das bandkeramische Dorf von Köln-Lindental. Letzter Grabungsbericht ', *Germania*, 1935, XIX, 107 ff.

otherwise it would not do so kindly '. The industry at Stonesfield died about the end of the last century, though it is still active in the Cotswolds.

The earliest workings were at the outcrops which follow the flanks of the steep-sided dry valleys known as Stockley Bottom and Bagg's Bottom. The former of these extends across the foreground of the photograph. Old waste dumps are seen fringing the allotments and others are hidden beneath the trees of Stockley Copse on the near side of the valley. Later, the workings were carried underground by adit levels driven into the valley sides and by vertical shafts, some 60 or 70 ft. deep, sunk in and around the village. The adit entrances and waste dumps in Bagg's Bottom are seen, covered with scrub, in the top right-hand corner of the photograph.

The Stonesfield Slate Beds are of outstanding importance geologically, owing to the fossil flora and fauna they have yielded, especially to the mammalian remains, while as a roofing material the harmonious blending of the ' slates ' with oolitic building stones is well known to all acquainted with Cotswold architecture.

The air-photograph illustrating this note was specially taken by Major George Allen, whose work will by now be familiar to readers of ANTIQUITY. It shows very well the slopes of the abandoned slate-tips, whose surface is now used as allotments. They are a striking instance of that rather rare phenomenon— medieval industrialism. In thus describing them, however, one must not be supposed to exclude a Roman *origin* for the industry. The fact that so many Roman villas were roofed with oolite slates makes it likely that the Stonesfield formations were used. There is, of course, a Roman villa at Stonesfield itself (the one discovered by Hearne at the beginning of the 18th century) and there are several others in the neighbourhood. It would be interesting to know whether roof-tiles from any of these villas can be definitely identified with the Stonesfield ' Pendle '.

CASTOR WARE FROM THE CAMBRIDGESHIRE FENS

The interesting sherd illustrated on PLATE III belongs to a comparatively uncommon class of vessel produced by the extensive Roman potteries in the valley of the Nene in the neighbourhood of Castor, Water Newton, and Wansford. The use of barbotine decoration in conventionalized animal and vegetable forms on Castor ware is common enough, the best-known subject being a hunt in which hounds chase a

hare or deer round the girth of a beaker. Here we have a more ambitious subject, the destruction of the Lernean Hydra by Hercules. The figure of Hercules brandishing his club is shown with considerable vigour and success, but the artist's limited experience failed him when he came to the Hydra, so that the efforts of the hero to dash to pieces a kind of hybrid between an Aunt Sally and an octopus seem disproportionately great.

It is interesting to observe that the Giant of Cerne in Dorset is shown in a very similar attitude to that of our pottery Hercules, and that there is reason to believe that the hill-figure once grasped something in its left hand which has now disappeared. Mr Stuart Piggott has shown that the traditional name of the Cerne Giant, Helith or Helis, may be a much corrupted form of Hercules.* It is not suggested that the missing detail of the Cerne Giant is a Hydra, but it is just possible that those who laid out this chalk figure were familiar with this type of figured pottery. Certainly there was a common origin for both.

Our fragment is a product of the first season's work of the Fenland Research Committee on a Romano-British village site at Welney in the Fens of southwest Norfolk, carrying on a programme which has already dealt with prehistoric aspects of the region. The site is a remarkable example of ribbon development in ancient times, the form being conditioned not so much as today by the existence of a line of communication, but by the levée of a more or less extinct arm of the Well Stream, the main drainage channel of the southeast Fens to the Wash until the later Middle Ages. This dead arm of the stream was represented in Roman as in modern times by a low bank of silt 850 feet wide and 5 feet high. Along the middle was an open channel which became progressively more choked as the Roman period continued, till in the 4th century it was no more than a foul ditch filled with refuse from the small cottages standing along its edge on each side. A great deal more work has to be done before the site can yield up all its secrets, but already it is clear that the village lasted from the 1st to the 4th century, with an interruption during the 3rd century caused by the irruption of tidal water into the moribund channel. Although the site is 24 miles from the modern sea-coast there is no reasonable doubt that the Well Stream was affected by the tides in Roman as in later times. The reason for the sudden penetration of the tide into the decayed backwater is not yet clear. It brought with it silt which was deposited in

* ANTIQUITY, 1932, VI, 214.

well-marked laminae, one for each tide, and also gave rise to conditions favouring the growth of plants which like brackish conditions. It may be that a sluice excluding the tides failed, or it is possible that the late Roman and post-Roman subsidence, which students of the Fenland are inclined to suspect began at this time, temporarily compelled the inhabitants to leave their dwellings when they were flooded by the tide-water pouring over the edges of the levée. Since the occupation was resumed later, and extended to the end of the Roman period, measures may have been taken to exclude the tides by various works. All of these points are undecided at present, but the total abandonment of the fertile silt fens to the north of the Welney site in the 5th century is a feature of the history of the district which seems only explicable on the basis of serious and continued floods.

The Anglo-Saxons made no settlements in these districts in Pagan times, and the human occupation was still restricted to the most favourable places at the time of the Domesday Survey.

When the work at Welney is completed it is expected that information will have been obtained which will clear up many of the problems of the topography of the southeast Fens in Roman and later times.

The excavation of Romano-British sites in the Fens gives good hope of recovering perishable objects which have long disappeared on highland sites. Not long ago recognizable remains of a cart were found by a fenman in an ancient choked ditch. The whole matter is obscure, the more so because the remains were destroyed before their significance was realized. The date of the relic is uncertain, but the chances are strongly in favour of a Roman attribution. The many Romano-British farms are connected by miles of ancient driftways comparable with those which now intersect the modern fields, and the former existence of wheeled traffic here in Roman times is reasonably certain.

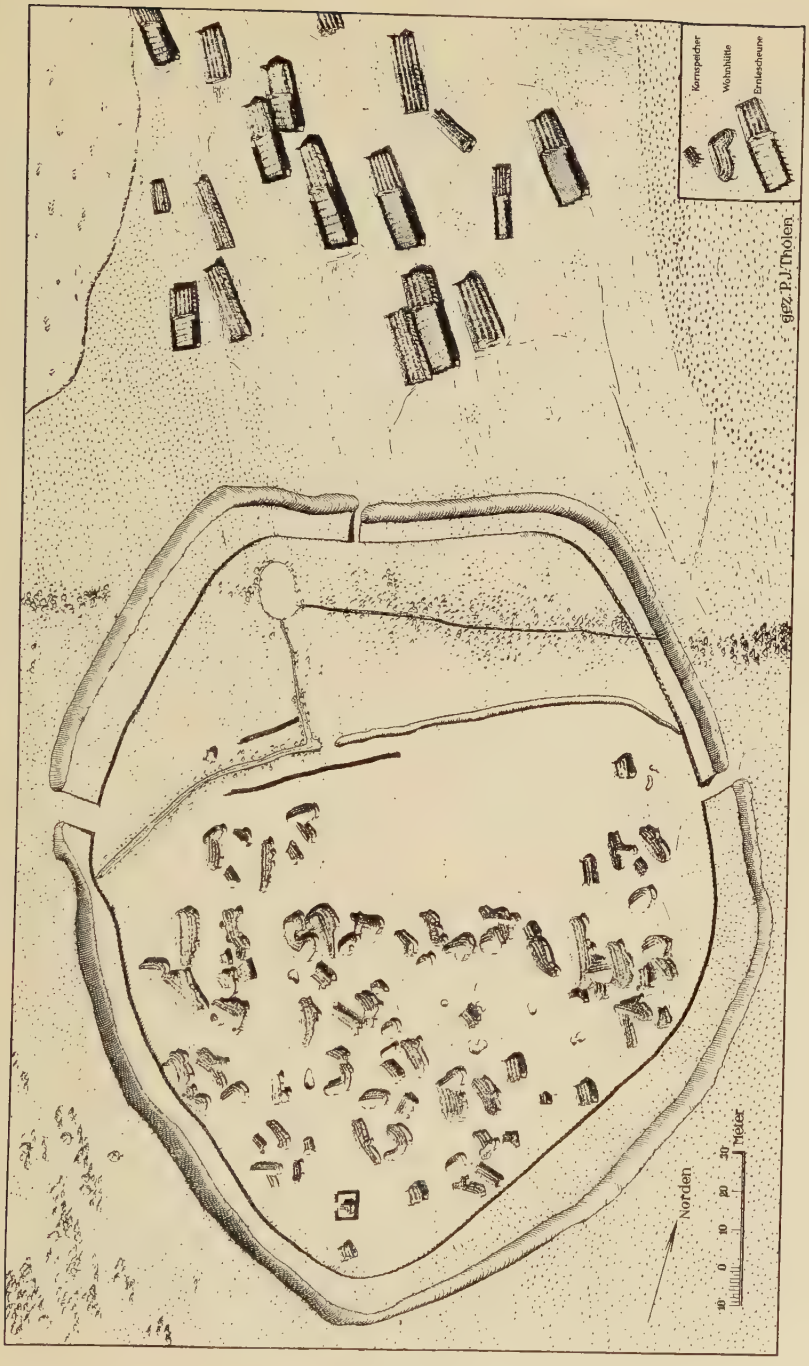
On two occasions in recent years perfect pairs of shoes have been found and thrown away, and at Welney a shoe-sole was found in the horizon of the earliest settlement. On this site a beginning has been made with systematic excavation, and we may expect more light on many obscure aspects of the equipment of the Roman-British peasant farmer.

C. W. PHILLIPS.

DEADMAN'S HILL, SANDON, HERTS (PLATE IV)

The chief interest of this note lies in the name ' Deadman's Hill '. Place-names so formed are not uncommon, and various explanations have, of course, been put forward (there is never any lack of *them !*).

PLATE I



A PEASANT VILLAGE OF THE NEOLITHIC PERIOD : A RECONSTRUCTION OF THE BAND-KERAMIK SETTLEMENT OF KÖLN-LINDENTHAL (3rd millennium B.C.) (*See* p. 89).
Ph. Rheinisches Museum, Köln

facing p. 96

PLATE II

MEDIEVAL SLATE-QUARRIES AND TIPS, STONESFIELD, OXFORDSHIRE (*See* p. 93)

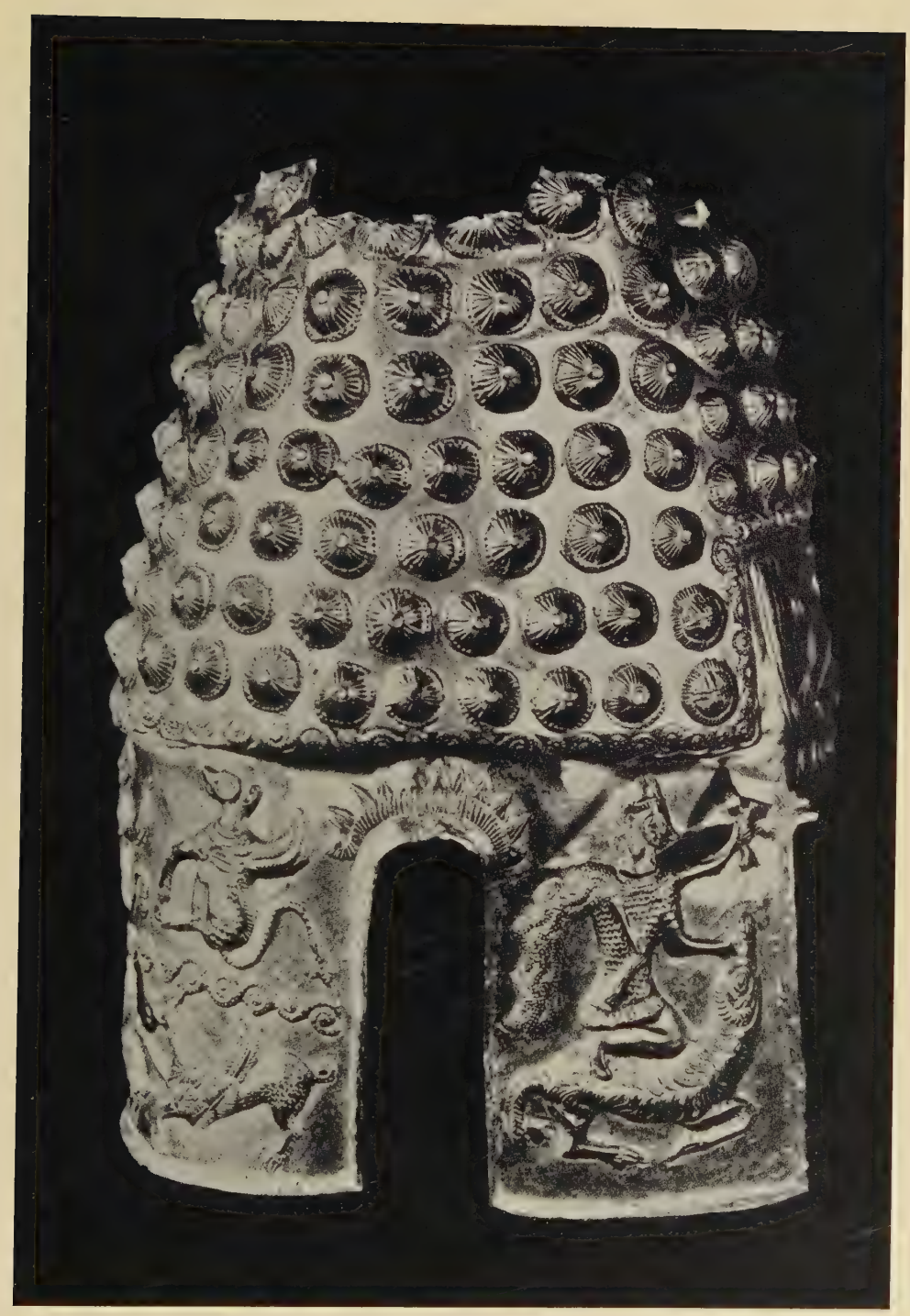
PLATE III

CASTOR WARE FROM A ROMANO-BRITISH VILLAGE SITE AT WELNEY, NORFOLK

(*See* p. 94)

BARROWS ON DEADMAN'S HILL BETWEEN ROYSTON AND BALDOCK HERTS (*See* p. 96)
Ph. Major G. W. G. Allen

PLATE V



GOLD HELMET OF DRAJNA, RUMANIA: SIDE VIEW (*See* p. 98)

PLATE VI

GOLD HELMET OF DRAJNA, RUMANIA: BACK VIEW (*See* p. 98)

RUINED CASTLE AT SOUTH KUDIWAN. (*See* p. 101)
Ph. R.A.F., Crown copyright reserved

RUINED CASTLE AT SOUTH KUDIWAN. (*See* p. 101)
Ph. R.A.F., Crown copyright reserved

Actually the origin of the name in this instance is obvious. Strung out along the hedge, which itself follows a ridge of high land and forms the boundary between Sandon and Kelsall, are four round barrows, possibly more. They appear on the photograph as round white blobs, with (in the two further examples) a dark central disc very characteristic of barrows in this district. Such mounds are generally, and, of course, correctly, believed to be burial-places, and there are many rustic legends about them in various parts of England. The origin of this belief is undoubtedly due more to the accidents of digging and discovery of bones than to genuine tradition reaching back to prehistoric times. In this instance the hill has taken its name from the barrows which, from the air, form such a conspicuous feature of the landscape. Actually, on the ground, they are not nearly so obvious ; of the six or seven possible barrows four at any rate are quite certain. The two larger white patches in the foreground, on either side of the Sandon road, *may* both mark the sites of barrows, but (without going into unnecessary detail here) neither is absolutely convincing on the ground. The nearer knoll is a remarkably steep bluff on which I suspect a windmill to have stood in medieval times. The whole group was discovered on 17 March 1934, by Major George Allen, whose air-photograph is reproduced on PLATE IV.

It should be added that the site lies just off the Icknield Way, a mile south of Ashwell Station, between Baldock and Royston, Herts. The whole distance is full of antiquities and of still undiscovered field-works. O.G.S.C.

NATIVE CUSTOMS

Professor PAOLO MARTÍNEZ DEL RÍO, Professor of History in the National University of Mexico, writes :—

' With reference to the note which appeared on page 356 of the current issue of " ANTIQUITY " it may be of interest to point out that the custom of affixing horns to trees is not unknown in this country. Our old gardener on the Hacienda de Santa Catalina, in the State of Durango, Northern Mexico, would invariably place a ram's horn on some convenient fork in order to protect the half-dozen stunted pines and peach trees, constituting what we proudly called the " orchard " of that arid place, from the evil influences of eclipses, as he often explained to me. Luis Maldonado was largely of native blood, and I rather suspect that he inherited this custom from his Indian ancestors.

' Although I fear that I am almost in complete disagreement with Sir Grafton Elliot Smith and the members of his school, I must confess that I have often been struck by the similarity of certain customs prevalent amongst our natives and also on the Himalayan borderlands and in Tibet—*e.g.* the habit of sticking pieces of cloth over the temples as a cure for head-aches. They are called " Chiqueadores ", and consist of small black disks : sometimes a leaf of a plant is used instead. The custom has almost entirely vanished in the course of the last few years but no self-respecting maid-servant omitted it say thirty or thirty-five years ago. I think that it has hitherto escaped notice on the part of anthropologists and it may accordingly not be out of place to draw attention to it. I offer no explanation '.

HEMBURY FORT

The Devon Archaeological Exploration Society with the collaboration of the Museum Authorities proposes to place on view in the Exeter Museum an exhibition of all the finds from their excavations at Hembury Fort. The exhibition will open on Saturday, 21 March at 3 p.m., when Miss D. M. Liddell, F.S.A., will summarize the results of the five seasons' work on the site and will describe and explain the exhibits, which will remain on view until 14 April. The identification of the imported neolithic pottery found at Hembury as identical with examples from Chassey and Fort Harrouard has further increased the importance of the Hembury site, and it is thought that archaeologists from further afield may be glad to know of this, the first, opportunity of seeing this considerable collection displayed as a whole.

THE GOLD HELMET OF DRAJNA, RUMANIA

In 1929 a peasant found in the Drajna hills, district of Prahova, Rumania, the magnificent gold helmet illustrated (PLATES V–VI). The ornament of this helmet is obviously akin to a South Russian style. The grooved cones of the upper portion suggest an imitation in metal of the astrakhan cap still characteristic of the steppe lands.

The only published account consists of five lines in the Catalogue (p. 28) of the Rumanian section of the Brussels Exhibition, 1935, from which the illustrations here given have been reproduced.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

With reference to the *hoga* of Cutteslowe, apparently a chambered long barrow used as a ' den of thieves ' in the Middle Ages (see ANTIQUITY 1935, IX, 96), Mr J. N. L. Myres writes calling attention to a similar use of an early mound by St. Guthlac. The very early life of this saint says :—' Erat itaque in predicta insula tumulus agrestibus glebis coacervatus quem olim avari solitudinis frequentatores lucri gratia illic acquirendi scindebant defodientes, in cuius latere velut cisterna inesse videbatur, in quo vir beate memorie Guthlac desuper imposito tugurio habitare coepit '. (Felix, *Vita S. Guthlaci :* W. de G. Birch, Memorials of S. Guthlac, Wisbech, 1881, §XIX). The site is known and marked on the Ordnance Map (Lincs. 148 SW) ; it is that called Anchor Hill, close to Crowland. There was a later medieval chapel on the site, but this and anything else that may have been there was removed by a farmer in 1866 ; see *Journ. Brit. Arch. Assoc.* XXXV, 132.

An International Numismatic Congress will be held in London 30 June to 3 July, 1936. There are six sections. Synopses of papers proposed should reach the Secretary (c/o Royal Numismatic Society, 22 Russell Square, London, W.C.1) before 31 March : time-limit, a quarter of an hour. The Proceedings will be published as a special number of the *Numismatic Chronicle*, which each member of the Congress will receive (with other privileges) for his subscription of one guinea (21*s*). Membership of the Congress, we understand, is open to all interested in the subject of coins.

Arising out of Mr Frank Stevens's note on primitive fire-making in our last number (December, pp. 479–81). a correspondent writes :— ' It is still possible that the regular use of steel and flint has not yet died

out even in Great Britain, in some of the remote cottages of the Welsh hills or Scottish islands. In my youth there was an old sailor in my native village of Solva, Pembrokeshire, who regularly lit his pipe on sunny days by means of a magnifying-glass, and on cloudy days by the help of flint and steel. The flint was a lump about as big as a fist and the steel was lyre-shaped.

' I can't remember when he died, but it was not earlier than the eighteen-nineties. Somewhere about 1895 I went to a farmhouse near Solva to ask for a match to light some furze for the purpose of smoking out a ferret who refused to come out of a rabbit-hole ; but I was told " we never keep any matches ". The fire of culm (a mixture of small anthracite coal and clay) was never allowed to go out from one year's end to another '.

The necessity of clear expression is fundamental in science. Most verbal obscurities originate in mental fog. Jargon is often a cloak for ignorance or indecision. As Sir George Macdonald said on a recent occasion (and there is no greater master of lucid expression) : ' Of all people in the world archaeologists have least reason to be ashamed of calling a spade a spade '.

Mr Alexander T. Curle (who at the time of writing was a Political Officer in Somaliland) writes (30 October 1935) in reply to the Editors' request for some account of his discoveries :—

' I have investigated the sites of some twenty towns in Somaliland and Abyssinia and have air and other photographs of many of them. I have also had the majority put on the map as I was working with Lt.-Colonel Clifford, R.E., on the Boundary Commission.

' Coin-finds indicate a date late in the 15th century, and with the help of various early books of travel and the Chronicles of Ethiopia, I can more or less place the towns as belonging to the period of Moslem prosperity in this region early in the 16th century, in fact the time of the Mohamedan invasion of Ethiopia.

' Relics include Celadon ware and a very mixed collection of glazes, Egyptian, Arab, etc., coins of Kait Bey Sultan of Egypt, quantities of fragments of glass vessels, spindle-whorls and stone plates of steatite, all indicating a very much more cultured people than now live here. Remains of mosques exist in every case '.

We hope in due course to tell our readers more about the neglected and almost unknown antiquities of this region.

From Somaliland to South Arabia and the Hadramaut is not a far flight. We reproduce air-photographs (PLATES VII–VIII, p. 97) taken somewhere there on 24 August 1925. The castle is called South Kudiwan, and occupies the end of a spur. The castle itself consists, as may be seen, of rectangular rooms within a round-bastioned wall (absent on the precipitous side); a bastioned curtain-wall obstructs access along the steep slopes on either side, between precipices. We are indebted to Mr A. S. Tritton for the following brief comments :—

The valley shown in these pictures is very like those shown in *Hadramaut, some of its mysteries unveiled*, by van der Meulen and von Wissmann, pp. 73, 88. The ruins might be of any date. A modern fort had double walls with rubble filling. (*Land of Uz*, by Wyman Bury, p. 26).

Castles, which belong to the great age of south Arabian civilization, are built of worked stone. That of Dhu Marmar is built on an isolated rock with the walls clinging to the very edge of the cliff. (*Vorislamische Altertümer*, Rathjens and von Wissmann, pp. 137ff.) At Naqab al-Hajar the walls have a distinct batter, as have the towers here. There is no sign of one of the round cisterns so characteristic of the Himyaritic age.

The regional names of England have not been studied as thoroughly as some of our place-names. Who was the inventor of such names as the Vale of the White Horse? Some, like the Pennine Chain, are certainly of literary origin; others, like Inkpen Beacon, are inventions of the Ordnance Surveyors. Here is an extract which takes some of them back into the 16th century (Harrison of Radwinter: Description of England, ed. F. J. Furnivall, 1878, p. 140):—

'I might here intreat of the famous vallies in England, of which one is called the vale of White Horsse, another of Euesham [commonlie taken for the granarie of Worcestershire], the third of Ailesbirie that goeth by Tame, the rootes of Chilterne hills, to Donstable, Newport panell, Stonie Stratford, Buckingham, Birstane parke, etc. Likewise of the fourth of Whitehart or Blackemoore in Dorsetshire. [The fift

of Ringdale or Renidale, corruptlie called Kingtaile, that lieth (as mine author saith) vpon the edge of Essex and Cambridgeshire], and also the Marshwood vale : but for so much as I know not well their seuerall limits, I giue ouer to go anie further in their description '.

During the last decade great progress has been made in England in the identification and excavation of those defended villages called, in the old style, ' camps '. We have identified a well-defined group of neolithic camps with interrupted ditches, and amongst those of the Iron Age it has been possible to distinguish more than one variety (see Dr. Cecil Curwen on ' Neolithic Camps ', ANTIQUITY, 1930, IV, 22–54, and Mr Christopher Hawkes on those of the Iron Age, *ib. id.* 1931, V, 60–97).

Geographical conditions suggest that similar structures of both epochs should exist, and be capable of identification and classification, in France. It does not appear, however, that this has been achieved so far. ' In the present state of our knowledge ', says Commandant Octobon, ' we can only state that there are camps and enceintes almost everywhere, that they belong to all periods from the end of the neolithic (perhaps even from the middle neolithic), and that there seems to be no gauge that can be applied [to distinguish] those of one period from those of another until we reach the Gallo-Roman period '. (*Bull. Soc. Préh. Franc.* June 1935, XXXII, 310–11). Has the writer never heard of such gauges as the spade, the potsherd and the air-camera ?

The excavations conducted for the Trustees of the British Museum by Mr M. E. Mallowan at Chagar Bazar in North Syria have produced a collection of small antiquities from the various strata uncovered, ranging from wares and copper implements of the al 'Ubaid and Tel Halaf periods (3000 B.C.) down. Mr Mallowan has presented a number of objects of the Roman period found in the same neighbourhood.

We hope this year to publish an article by Mr Mallowan on the painted pottery of the Syrian-Iraqi region. So many important additions to knowledge have been made in the last few years that

archaeologists who do not specialize in this region will probably be glad to know the general significance of such terms as those used in the above paragraph. It may be added that some of the earliest painted pots (of the Tell Halaf group) are also some of the most beautiful, in their simple style, ever constructed. Excellent colour-plates of some found by Mr Mallowan at Arpachiyah are reproduced in his monograph on the excavations he conducted there (see *Iraq* April 1935, vol. II, part 1, which is entirely devoted to his report).

It seems that defensive constructions are not peculiar to man, if we are to believe a writer in the *Daily Telegraph*, 16 November 1935.

Moose in winter time often make what are known as ' yards '. They travel to and fro trampling down the snow, and all round the soft untrodden snow forms a kind of rampart. Here they can remain safe from the wolves, which are their chief enemies. When the snow is soft the moose is more than a match for the wolf, but if the wolf can run along on hard snow a band will bring down even a powerful bull.

Mr R. J. Forbes writes saying that he is willing to give away copies (so far as available) of his ' Geschichte des Bitumens ' (reviewed in ANTIQUITY, December 1935, IX, 494) to any readers of this notice who may care to write to him for them (Haringvlietstraat 11, Amsterdam [Zuid]). He still has some copies in German, French and English; and the booklet is not available at booksellers.

Our old friend Bill Stumps has been busy again in Scotland, this time in Fife, where he has successfully planted a nondescript stone object on a local paper, having previously carved on it the date (A.D. 1016) in Arabic numerals ! (*Bulletin and Scots Pictorial*, 24 January).

A Roman cemetery is being excavated between St. Stephen's church and the Roman town of Verulamium, by Dr Norman Barry, on behalf of the St. Albans and Hertfordshire Archaeological Society. (*The Times*, 24 January).

A carved stone panel (a temple-metope) has been found near Paestum in Southern Italy. Its interest is twofold ; it is the first example of ' primitive ' Greek sculpture (of Peloponnesian origin) to be found in Italy ; and it was evidently completed by painting. The date is 6th century B.C. (*Manchester Guardian*, 2 December, 1935, illus.)

Three images of thin hammered bronze plates, joined together with short pins (predecessors of cast bronze statues), have been found in Eastern Crete. Their importance in the history of Greek sculpture will be obvious. Two represent a goddess and a boy-god. Describing the persistence of the native cult of the Mother and Son in Crete, Sir Arthur Evans says :—' It was really part and parcel of religious conceptions at home in that older east Mediterranean world of which Minoan Crete had been a forepost'. He further reminds us that according to St. Jerome, Thammuz had been bewailed in the holy grove of Bethlehem, and that ' the traditions that centre in the neighbouring Cave of the Nativity display, even in detail, truly startling correspondences with those of ancient Crete '. (*The Times* 20 November 1935). In a subsequent communication (*The Times*, 7 December 1935) Sir Arthur publishes an illustration of the statue of the goddess, which he ascribes to the 8th century.

It is reported in the press that air-photographs of Alesia, where Caesar besieged Vercingetorix, have revealed Roman camps. This is highly probable, and indeed the suggestion that air-photographs should be taken there was made many years ago by the present writer, in a letter to a French colleague. But the statement (in *The Star*, 6 November) that ' Caesar left a detailed report of the battle [of Alesia], with maps showing the hills, valleys and streams ' suggests confusion with a later potentate who was also interested in the site.

Interesting results have been obtained by the Committee on Sumerian Copper (British Association, Section H). At Ur, a single object of the Al 'Ubaid period is of nearly pure copper; of eleven objects from the Royal Cemetery, nine are of bronze, while two contain only

small proportions of tin. While both copper and bronze occur during the Sumerian period, objects of the later Sargonid period are either of copper, or contain only a small proportion of tin. (*Nature*, 2 Nov. 1935).

From remains of thousands of fragments of the shells of hackberry seeds found in a layer several inches thick in the Chou-kou-tien cave near Peking, it would appear that Peking man (*Sinanthropus*) supplemented his meat diet, provided by game animals, by vegetable food. These seeds, smaller than peas, were brought to the cave by human agency, and afford the earliest known example of a vegetable food used by primitive man (*Nature*, 12 October 1935). A recent examination of the skeletal remains suggests ' that *Sinanthropus* takes his place in the direct line leading to recent man, and that among recent races the Mongolian group has the closest affinity to Peking Man ' (*Nature*, 11 January 1935).

Excavations are to be undertaken shortly at the important hill-fort of Castle Dore, near Fowey, Cornwall. The site is associated with the Dark Ages and with the King Mark of Legend, and the work will be followed with interest. The position is one of great geographical significance, near the southern terminus of an isthmus road used by St. Sampson in the 6th century, and probably also in remote prehistoric times. We cordially commend the project (with which we have been associated personally) to all concerned, mentioning also the address of the Hon. Treasurer (Mr W. E. Grenfell, Royal Institution of Cornwall, Truro). The direction of the work will be in the competent hands of Mr C. A. Ralegh Radford, F.S.A., acting on behalf of the Cornish Excavations Committee, and will begin in April.

In a recent article (ANTIQUITY 1935, IX, 287) we stated that the spelling Crunzian did not occur on the Ordnance Maps. We now find that this was the spelling used on the 6 inch map of 1854 ; and that it was changed to Crunzie on the edition of 1908. Dr A. O. Anderson's remark, quoted there, was therefore perfectly correct, and we are sorry that we cast doubts upon it. Readers will remember that Dr Anderson suggested that Crunzie might be the modern form of Cair Gunnion (or whatever the exact ancient form may have been).

Recent Books and Articles, and Books Received

Aspects of Sumerian civilization during the third dynasty of Ur, with evidence from tablets in the John Rylands Library, by the Reverend T. Fish. *Bull. John Rylands Library, Manchester*, January 1935, XIX, 90–101.

Valuable first-hand gleanings.

On the ' Wodan-monster ' or the ' dragon ' series of the Anglo-Saxon sceattas, by Colonel N. T. Belaiew. *Seminarium Kondakovianum*, 1935, VII, 169–186 (Kondakov Institute, Prague).

Stamped and inscribed objects from Seleucia on the Tigris, by Robert Harbold McDowell. Ann Arbor ; Univ. of Michigan Press, 1935. $3.50.

The stamped amphora handles found in the American excavations in the Athenian Agora 1931–2 : a catalogue treated as a chronological study, by Virginia Grace. Harvard Univ. Press, 1934. Price not stated.

The conquest of Kish under Agga, by Gilgamesh, by the Rev. T. Fish. *Bull. John Rylands Library*, Manchester, July 1935, XIX, 362–72.

' The fifth king of this dynasty [the First Dynasty of Erech] was Gilgamesh, the hero of the great Epic . . . This same Gilgamesh is the hero of the struggle recorded on the Rylands Tablet. The main item of news is that he was a contemporary of [sic] Agga the last king of Kish I, under whom rulership ceased. It has long been suspected that Kish I and Erech I were in part contemporary. Here we have a tradition in writing that the fifth king of Erech I was contemporary with the last of Kish I. And that is news '.

Stonehenge and its date, by R. H. Cunnington. Methuen, 1935. 5*s*.

This book was adequately reviewed in *Antiquaries Journal*, July 1935.

Münzhandlung Basel : Vente publique no. 4 : Monnaies Grecques. 1 October 1935.

Coins from Seleucia on the Tigris, by R. H. McDowell. Univ. of Michigan Press (Humanistic Series, vol. 37) Ann Arbor, 1935. $3.50.

Nieuwe Drentsche Volksalmanak 1935 (van Gorcum and Comp. Aan den Brink, Assen) ; article by Dr A. E. van Giffen on ' Oudheidkundige aantukeningen over Drentsche vondsten ', in Dutch. 56 pages, 11 illus.

Der Kölner Münzschatzfund vom jahre 1909, by Wilhelm Reusch.

Brief Guide to the National Museums and Galleries of London. H.M. Stationery Office, 1935. Pp. 106 and many illustrations. 6*d*.

This most useful and excellently produced little guide-book can be purchased through any bookseller or sale office of the Stationery Office at the modest price of sixpence. It should fill a long felt want in providing a general bird's-eye view of the various collections for visitors who have neither the time nor the inclination to study individual guides and catalogues, and should it find favour with the public it will be revised each year. We gladly commend it to our readers.

Nineteen Echoes and a Song. Translations mainly from the Greek and Latin by H. M. Dymock, G. M. Lee, W. D. H. Moore, H. K. St. J. Sanderson and Nolan Wood, with an introductory poem by Denis Botterill. G. M. Lee. Trinity College, Cambridge, 1935. pp. 20. 1*s* 6*d*.

It is unusual for a book of poems to be submitted for review in ANTIQUITY, and anything more than a short notice here would be out of place. Suffice it to say that the translations make pleasant reading ; and if one does feel a little uneasy about Mr Dymock's preference for the harsh-sounding and obsolete ' leman ' to interpret the ' puella ' of Catullus in Lesbia's Sparrow dirge, there is always reassurance in the strength of Mr Sanderson's admirable version of a little-known poem by Alcman the Lydian. R.F.J.

The Traditional Dance, by Violet Alford and Rodney Gallop. Methuen, 1935. pp. 204 and 14 illustrations. 6*s*.

This small book describes in a popular way the many varieties of folk-dance to be found in Europe, and its authors lay special emphasis on the form and composition of the dance while saying comparatively little about its anthropological issues. It is definitely a book for those interested in folk-dancing for its own sake. ' A fine sight it is ', say the authors, ' to see a circle of grave men pacing slowly, then shooting up into the air seven times over as though they could never stop '. It may be, but for our own part if we had to see anything of that sort we should prefer the stout soldier from Missolonghi who swallowed a pint of beer from a mug held by his lips alone, while both his thumbs clicked like castanets in the air and he spun round and round on his feet.

The Tressé Iron Age megalithic monument, etc., by V. C. C. Collum. Oxford, 1935. pp. 124. 10*s* 6*d*.

We are surprised that the Oxford University Press should sponsor such a shocking piece of work as this. As it has already been dealt with elsewhere we do not propose to review it here.

In Memoria Lui Vasile Pârvan. Essays by various members of the Roumanian School at Rome. Bucharest, 1934. pp. 326, plates and illus. in text. Price not stated.

This volume consists of essays on archaeological subjects, published as a memorial to Vasile Pârvan (1882–1927), founder and first Director of the Roumanian School at Rome, by members of the School. The articles range over a wide field: Maria Holban discusses the authorship of Marguerite de Valois' Book of Hours and G. Oprescu makes a study of an Adoration of the Magi by Bonifazio Veronese, while V. Bâncilă writes on Augustine's Letter XXVI to Licentius. Prehistoric archaeology is represented by an illustrated article by Hortensia Dumitrescu on the pottery from a site at Hodoristea, which includes painted and incised wares equated with Cucuteni B, and a description, by Vladimir Dumitrescu, of an imported bowl of Delian ware of the second century B.C. found near Fundeni, southeast of Bucharest. The only contribution in English is by the Director of the American Academy in Rome and takes the form of an impassioned apostrophe to the shade of the departed.

S.P.

Books Received

A History of Carmarthenshire. Edited for the London Carmarthenshire Society *by* Sir John E. Lloyd. Vol. I. From Prehistoric Times to the Act of Union (1536). *Cardiff: William Lewis (printers).* 1935. *pp.* XIX, 375, *maps and illustrations.*

English Fabric, *by* F. J. Harvey Darton. *George Newnes,* 1935. *pp.* 331, *and* 5 *plates.* 10*s* 6*d.*

Bible and Spade: an introduction to Biblical Archaeology, *by* Stephen L. Caiger. *Oxford University Press,* 1936. *pp.* XII, 218, *with illustrations.* 5*s.*

Calendar of Ancient Correspondence concerning Wales, *by* J. Goronwy Edwards. *University Press Board, Cardiff,* 1935. *pp.* LVII, 302. 15*s.*

Archaeological History of Iran, *by* Ernst E. Herzfeld. The British Academy. *Oxford University Press,* 1935. *pp.* XII, 112, 20 *plates and* 13 *figures.* 7*s* 6*d.*

Reviews

ROMAN GAUL, THE OBJECTS OF TRADE. *By* Louis C. West. *Oxford : Basil Blackwell*, 1935. *pp.* xi, 191. *7s 6d.*

In this volume Dr West continues his statistical survey of the Roman provinces. The chapters deal with the means of communication in Gaul (roads and rivers), the various articles of production, the condition of the workmen responsible for them, and finally with the imports needed to assure the balance of trade. Each chapter discusses generally the significance of the statistical material appended to it : the statistical tables tell us in the chapters relating to Commodity Production (to take an example) the place of origin of the commodity, the place where it has been found or is reported to have gone in the way of trade, and the bibliographical reference. The bibliography is full, though not exhaustive : there is much important material that might have been drawn from out-of-the-way French *Sociétés d'Émulation*. Moreover the exclusion of the German provinces is not altogether happy : in the section on Pottery Dr West prowls uneasily around Heiligenberg and Rheinzabern, unable to bring them into his survey ; and one does not find it easy to appreciate the commercial significance of Trier when the districts that depended on it for their commerce are excluded.

From these remarks the intending purchaser will, I hope, understand what he has a right to demand from this book. The general reader ought to feel confident that the statistics are set in a framework that is historically reliable : the specialist (who can look after himself with a distorted framework) expects a high standard of completeness and a still higher standard of accuracy. This book must, in fact, be judged as we should judge a dictionary. Admiration is due to the very heavy labour which Dr West has expended single-handed upon its compilation, but admiration is irrelevant. There is no middle course for a book like this : it is either excellent or it was better unwritten. And I am afraid that this is not an excellent book.

On p. 2 we find these words : ' In the settlement of the Roman provinces, it seems clear that Augustus wished to make a second Egypt of the three Gauls. . . . Self-government was wholly lacking ; the officials, as in the corresponding units in Egypt, being sent down from above. Naturally there was no general assembly, no decuriones or other municipal offices as in Italy '. On this curious assertion, which is quite unjustifiable and inconsistent with a mass of evidence, Dr West gives the following note : ' This comparison with Egypt was apparently first made by Rostovtzeff. It was repeated by Kornemann in Klio, 1911, 390 '. In Dr West's next footnote there is a reference to Rostovtzeff, *Social and Economic History*, p. 501, n. 10. To p. 501, n. 10 I therefore turn and find these words : ' According to Hirschfeld, the reform of Augustus legalized the ancient cityless condition of the Gallic tribes. This statement of Hirschfeld led Kornemann to an *utterly misleading parallel with Egypt* ' [italics mine]. Two pages later we are told that Narbo was founded by the Gracchi : both Gracchi were dead by the time of its foundation ; and Strabo does not say that in the time of Augustus Narbo

had a smaller population that Nîmes, which would be curious in face of the statement (no authority quoted but Pomponius Mela, II, 5, 75 may be meant) that by the time of Tiberius, Narbo was the largest city in the country. Strabo says that in its political position (κατὰ τὸ πολιτικόν) Nîmes with its territorium was superior to Narbo. On p. 23 we are told that among the Morini the land occupied by plane-trees was exempt from the land-tax; Pliny *N.H.*, XII, 6, cited by Dr West, says exactly the opposite.

In matters of detail there are too many mistakes and omissions. It is stated on p. 22, notes 25 a and b, that the Great St. Bernard was disused after Constantine and the Little St. Bernard in the third century: no authorities are quoted, which is just as well, for both statements are false; the passes have yielded coins—the former to Arcadius and Honorius, the latter to Theodosius I (*Notizie degli Scavi*, 1894, p. 44; 1924, p. 392). In the same chapter we are told (p. 16) that Claudius built a network of roads in Brittany to serve the iron-smelters. No authority is quoted; in fact, there is just one milestone of Claudius in Brittany (*C.I.L.*, XIII, 9016) and it is not in an iron-smelting district. Again from the same chapter, there is nothing in the inscription cited (*C.I.L.*, XIII, 3105. *ib.* 3114, incidentally it has been missed), to show that the Nautae Ligerici (not Ligericii, as on p. 14) ' were limited to supplying the needs of Nantes '.

In the next chapter, which deals with Forest Products, Ausonius is misquoted (XIII, 8, not XVIII, 6); Palladius is misquoted (XII, 15, not XII, 13), while Horace, *Sat.*, I, 6, 104 and Theophanes, 351 are so badly astray that I cannot put them right. There is nothing in Sidonius, *Ep.*, VIII, 4 to show that ' woods were a necessary part of a large estate '; the passage cited to prove this from Ausonius is misquoted (*Idyll*, III, 23, not III, 1), and the most explicit reference of all, *Lex Visigothorum*, X.i.8 & 9, is missed. In the next chapter IV, on Cultivated Plants, the statistics upon beer cite *C.I.L.*, XII, 372 without mentioning that CERVISIAM is a highly conjectural restoration of Hirschfeld; they include *C.I.L.*, XIII, 597* which has nothing to do with beer, while they miss Pliny, *N.H.*, XXII, 164, Julian in *Anth. Pal.*, IX, 368, and Gregory of Tours, *de Gloria Confessorum*, I. The chapter on Mines quotes Daubrée's article in *Revue archéologique*, 1868, twice only: thus not a few of the sites mentioned by Daubrée are omitted in the inventory; and when we find that both the references contain the same misprint (1860 for 1868) the suspicion deepens that they have been taken at second hand. Moreover Dr West knows nothing of Daubrée's still more important article in *Revue archéologique*, 1881, and has missed the fine collection of iron ingots in the Metz museum, studied by T. Welter in *Jahresbuch für Lothringisches Altertumskunde*, 1906.

I have taken a selection, not, I believe, an unfair selection, from the material contained in this book. I will not deny that there is much that is valuable in it, nor that very detailed research has gone to its compilation. But a book of this kind must be trustworthy, and this book is not. C. E. STEVENS.

THE VICTORIA HISTORY OF THE COUNTY OF SUSSEX. Volume Three *Edited by* L. F. SALZMAN. *Published for the University of London Institute of Historical Research by the Oxford University Press*, 1935. *pp.* XIV, 170, *illus. and maps.* 42*s.*

After a long interval, during which it encountered many setbacks, the third volume of the Victoria History of Sussex has appeared. The earlier volumes were published in 1905 and 1907, and this third volume to some extent fills the gaps in its predecessors by

giving an account of the Roman antiquities of the county and a history of the City of Chichester and its Cathedral.

The first part, by Mr S. E. Winbolt, deals with the Roman period. Sussex has only two major Roman sites, Pevensey and Chichester, but it has a great scatter along the coastal plain and up the river valleys of farms and houses, ironworks in the Weald, and two posting-stations on Stane Street. The first section contains a short account of the fort at Pevensey and deals more fully with the remains of the Roman period, many of them unfortunately now lost, found in and around Chichester. For the rest, there are sections on country houses, of which Sussex has several fine examples, well illustrated by plans ; Roman ironworks, roads and camps ; and a topographical index of finds, etc.

The early history of ' that disappointingly dark patch, Roman Chichester ' causes concern to the author, but the number of pre-Conquest relics from the city is growing, and the pottery of the late 1st and early 2nd centuries is sufficiently plentiful to warrant a fair estimate of pre-Conquest fashions and contacts. The relations of the Regni (or Regnenses, as they are alternately named in this volume), with their Belgic neighbours are admittedly difficult to assess, but a glance at the pottery vessels from the cemetery will show a frequent borrowing of Belgic forms. Moreover, the presence of fine harbours so close at hand would encourage immigrants and traders from the Continent, a fact which is borne out by the finding of imported wares in the city. As to structural remains of the Roman town, the core of the surrounding walls is undoubtedly Roman, but the gates have been destroyed. No mention is made of the excavations carried out in 1931 and 1932, which indicated that the walls and earthen ramp were constructions of the 2nd century, and the bastions additions of the Saxon Shore period. Houses, and structures, such as the Temple to Neptune and Minerva, appear to have been finally destroyed during the rebuilding on the main streets in the 18th and 19th centuries of dwelling houses with deep cellars, and we now have only records of finds of tessellated pavements, etc., as shown on the plan facing p. 10.

Another Chichester problem is the dating of the series of dykes which lie on the northeast and northwest of the city. A description of these is given in a summary of a paper by Dr J. P. Williams-Freeman, but the problem can only be solved by very careful excavation.

Chichester has certainly suffered neglect at the hands of archaeologists, but the large collection of 1st and 2nd-century vessels from the Roman cemetery beyond the East Gate, excavated by Alderman Butler in 1895–6, is available for study. The list of potters' stamps in this collection given on p. 17 is incomplete, as it includes also Lollius (Vespasian–Hadrian) and Carillus (Flavian). The object on the plate facing p. 17, described as a leaden steelyard (bottom right), is of course a leaden lamp holder, with hook and swivel for suspension.

The distribution of Roman remains in the county is well illustrated by the map facing p. 2, but some of the plates are poor, and that of the casts of coins facing p. 16 is of little value, except in showing the rare Valentinian III. The fine life-size portrait-head, probably of Germanicus, found at Broadbridge near Bosham about 1855, is now generally accepted as a later importation, possibly the ' loot ' of some 18th-century traveller.

The second part of the volume, dealing with the City of Chichester, opens with a brief account of the houses in the main streets, the Market cross (worthy of a better plate than that facing p. 74), St. Mary's hospital, the Grey Friars' church and the development of the city outside the walls. There follows the history of the city from Saxon

times onwards, and every aspect of its life is fully examined. Constitutional and Parliamentary history, courts, trades and industries, and ports, and finally the ecclesiastical background, receive full attention, including a complete survey of the cathedral and precincts, and the city churches.

A record of the domestic architecture of Chichester has long been necessary, and appears at an appropriate time, when modern development is fast laying its hold on one of the most pleasant cathedral cities of southern England, and many of the old houses are being gutted for chain-stores. Particularly welcome is the account of the building of Westgate House, now the County Hall, taken from a hitherto unprinted paper by the late Garraway Rice, F.S.A. It may not be generally known that when this house was undergoing repairs in 1933–4, some of the stone quoins were found to be re-used material from another building, and included part of the chamfered spring of an arch, a corbel in the form of a human head and other architectural mouldings.

The names of Mr Walter Godfrey, F.R.I.B.A., F.S.A., and Mr J. W. Bloe, F.S.A., are a sufficient guarantee that the historical and architectural survey of the cathedral is a first-rate piece of work. It is accompanied by two excellent plans, one of them the generous gift of Mr Godfrey, and many plates. In the latter, throughout the volume, and in the line-drawings, there is room for improvement, which should be possible now that the publication of the Victoria Histories rests on a more satisfactory basis. The lack of an index to this volume is regrettable. It is true that a general index is to be published when the several volumes dealing with the Rapes are complete, but this makes it all the more necessary that the table of contents should be as full as possible, as much valuable material is now almost inaccessible. G. M. White.

WE EUROPEANS : a survey of ' Racial ' Problems. *By* J. S. Huxley, A. C. Haddon *and* A. M. Carr-Saunders. *Jonathan Cape*, 1935. *pp.* 299. *8s 6d.*

The object of the three eminent authors of *We Europeans* is to confront with scientific facts what they term ' the vast pseudo-science of racial biology . . . which serves to justify political ambition, economic ends, social grudges, class prejudices '. But since it is quite useless (or so the psychologists tell us) to confront passion with reason, we cannot hope that a single anti-Semite, or a single prater of the superiority of the Anglo-Saxon ' race ' will be the better for this book. The honest student of public affairs, however, will find in it an admirable and lucid summary of the most recent findings of the biologists and the anthropologists upon ethnic problems, while it will prove salutary reading for the average archaeologist, geographer and historian. The historians have, of course, played a major part in propagating the myth of an ' Aryan race ', and it is amusing to note also how strongly the exponents of modern German racial doctrine lean upon the historian Tacitus. Should they care to consult the famous Renaissance scholar, Johannes Goropius Becanus, they will find convincing proof that German was spoken in the Garden of Eden !

The scientific reader will probably find Dr Huxley's chapters the most useful, for he will already be acquainted with Dr Haddon's *Races of Mankind* which is here epitomized. The discussion of fallacies and pitfalls suggests that the anthropologists have still to put their own house in order. In anthropometric work (as until recently in meteorology) the use of arithmetical averages and means in lieu of frequency curves and data of variability, has produced results that are meaningless. The present reviewer would also stigmatize as fallacious the type of map which faces p. 201. Purporting to

show 'ethnic movements' it gives without distinction the 'tracks of migrating *and raiding* peoples', emphasizing with heavy lines the raids of the Huns and the conquests of the Arabs. The lay reader may be pardoned if he concludes that the Greeks are of Hunnish descent, and that in a Yorkshireman he sees the last of the Picts!

Four maps contributed by Professor Hogben, showing world-distribution of Blood Groups, Stature, and Cephalic Index, are deeply interesting; but the geographer will be concerned to know what principle has governed the placing and spacing of the symbols, and whether there is a constant relation between the number of individuals examined and the total population of the area.

The perusal of a volume such as this should convince us of the need for a much more deliberately organized liaison between the sciences than seems possible at present. Facing p. 54 is a diagram of a character now becoming familiar: a correlation of human types, archaeological periods, and quaternary climates. Now, the climates are dangerously over-schematized. There is no reason to expect that the four classical maxima in the Alps should have their parallels in northwest Europe, or indeed that the Alpine and northwestern glaciations were contemporaneous. A major fallacy of current historical climatology is the common assumption of similar and simultaneous rather than complementary changes, and archaeologists and anthropologists should alike 'gang warily'.

We Europeans bears, up to a point, the stamp of over-hasty and piecemeal writing and illustration (one of the maps criticized above is borrowed from Mr H. G. Wells' popular *Outline of World History*). An excuse for this is to be found in its *ad hoc* character, and, as it happens, the fact that certain chapters take the form of self-contained essays allowed readers of ANTIQUITY to enjoy one of them (Chapter IX) as an article in this Journal (Vol. IX, p. 261) before the complete work was issued from the press. Were it in our power to draw up a compulsory reading-list for politicians, this book would certainly be included, and it should be placed in the hands of the young publicists of the future who are now sharpening their wits in school and college debating societies.

E.G.R.T.

CAROLINGIAN ART. *By* ROGER HINKS. *Sidgwick and Jackson*, 1935. *pp.* 224 *and* 12 *plates.* 15*s.*

The dust-cover of this book informs us that it is the first in any language devoted to Carolingian Art as a whole. This statement is to a certain extent negatived by the fact that the book does not undertake and does not profess to undertake any survey of Carolingian architecture. Its purview is confined to the arts of illumination, ivory-carving and metal-work. The book is furthermore an art-criticism and not an archaeological handbook and anybody seeking for exact information as to the numbers, details and precise description of the surviving examples of the age, will not find it here.

What Mr Hinks has given us is a treatise on the origins, composition and development of the format of Carolingian art and ornament and particularly the blending of northern and Mediterranean ideals and methods which was to form the basis of medieval art. In pursuit of his subject the author goes far back into antiquity and the first half of the book is devoted entirely to this preliminary section of the subject. The author's thesis is of the highest interest and whether or not one agrees with his conclusions, he has produced a well-reasoned argument, couched in a language which is comparatively free from art-jargon and thus reasonably intelligible to the ordinary reader.

The second half of the book is devoted to the application of these premises to the chief surviving examples of Carolingian pictorial and decorative art. The scheme is closely argued and on the whole convincing, though such phenomena as the recurring Baroque and other resurgent mysteries owe their existence, perhaps, largely to the eye of the beholder. The author furthermore is, we suspect, too deeply intrigued with modern German theorists who are apt to involve themselves and their readers in a complicated web of action and reaction which is quite incapable of proof. The occasional introduction, too, of analogies in modern and ultra-modern art is an unnecessary distraction and introduces a controversial element which is far better absent.

We have noticed two misprints—Valentinian II on p. 130 and 829 for 859 on p. 191.

The book is well produced, and the illustrations, though not too numerous, are excellent. A.W.C.

THE PLACE-NAMES OF ESSEX. *By* P. H. Reaney, under the General Editorship of A. Mawer and F. M. Stenton. *Cambridge University Press*, 1935. *pp.* lxii, 698. 25*s*.

This is the twelfth volume of the publications of the English Place-Name Society, and in scope and arrangement follows the same general lines as previous volumes. After an interesting introductory note, which contains a brief survey of the place-names of Essex, and a number of conclusions to be drawn from a study of them, Dr Reaney deals exhaustively first with the river-, creek-, forest-, and road-names of the county and then with the place-names by hundreds and by parishes. Field and minor names are considered in a separate section. There are also notes on the elements found in Essex place-names and their distribution; on personal names compounded in place-names; on feudal and manorial names; and on Celtic, Scandinavian and French names and their distribution.

As Dr Reaney points out, archaeology and tradition have done little to dispel the obscurity which enshrouds Saxon Essex. So few finds have been made that we might conclude that the settlement of the county was little advanced in Anglo-Saxon times. A study of the place-names, however, makes this view untenable. Proof of the early date of settlement of Essex is afforded by the frequency of names in *-ingas* and *-ingaham*, generally admitted to be evidence of antiquity; by the number of names which are akin to those of places in Kent and Sussex known to have been settled early; by the existence of such names as Thundersley and Wodnesfold, which obviously date from a time of heathen worship; and by the frequency of names containing a simple personal name, which may usually be regarded as early, since personal names of the simpler type were becoming unfashionable by the ninth century. Essex, in fact, affords an excellent instance of the way in which place-name study can aid and supplement archaeology.*

The maps given to illustrate the distribution of some of the more common place-name elements are a useful feature. Amongst other things, they show the demarcation between areas in which earlier names, such as those in *-ingas* and *ingaham* are frequent, and areas which contain a preponderance of later woodland names, in *-hey* and *-ley*. It is evident that the early settlers tended to avoid the forests, and when they did settle in them it was near rivers or on the Roman roads.

In Essex there is little evidence of Celtic survival, except in the far northwest border, which was probably the last district to be occupied by the Saxons. There is

* See also the remarks on the same subject in our last number, December 1935, pp. 455 ff.

more evidence of Scandinavian influence but it is far less important than Norman influence, which is more strongly marked than in any other county, and is responsible for such picturesque names as Tolleshunt d'Arcy, Beauchamp Roding and Hatfield Peverel. The number of parish and manorial names which preserve the names of Norman barons bear testimony to the intensive feudalization of the county.

In its accuracy, completeness, and painstaking scholarship, THE PLACE-NAMES OF ESSEX faithfully maintains the high standard which we have learnt to expect of the publications of the Place-Name Society, and it forms a substantial advance towards the completion of the national place-name survey. FRANK W. JESSUP.

THE RE-EXCAVATION OF THE DÉHUS CHAMBERED MOUND AT PARADIS, VALE, GUERNSEY : together with studies of the pottery and human remains recovered in this and the earlier excavations, and an investigation of the cult responsible for megalithic burials and for the symbols found in these tombs. *By* V. C. C. COLLUM. *pp.* 189, 28 *plates and plan.*

This long report describes with much detail an excavation and restoration undertaken in 1932 by Miss Collum, at the charge of Sir Robert Mond and by invitation of the Ancient Monuments Committee of the States of Guernsey, in one of the most notable chambered burial-mounds in the Channel Islands. As neither the title page nor the cover set out particulars of publication, we are quite unable to tell would-be readers where to obtain the report and the cost of it ; not even the printer's name is there to provide a clue, and the date of publication is likewise not stated.*

The history of the Déhus has been one of constant misfortune beginning when the burial-chamber was plundered shortly after its erection. It received an unhandy evisceration at the hands of the Lukis family early in the nineteenth century, an undertaking so confusedly recorded as to be of little use to modern archaeologists ; later in that century it suffered a ' restoration ', and then in 1916 it was trenched again, this time by the Société Jersiaise for the purpose of a demonstration. But this is not all. The mound has been damaged further by the people of Vale so that no part of the original outline remains. A stone goat-house was built on it, and the entire site has been used alternately as a rubbish dump and a convenient stone quarry. May we not very well ask if such a monument is indeed worthy of re-excavation ; and in any case we cannot but have an uneasy feeling that the early depredations will have effaced much evidence of value and quite likely have distorted any that remains. Can we, in brief, be assured that the authenticity of stratification has not been impaired ? Miss Collum says that we can.

Miss Collum summarizes her conclusions under eighteen headings, the most important of which propounds the altogether novel dating of 300 B.C.–300 A.D. for the Déhus, and incidentally for the rest of the European megalithic chambered mounds. The chief discovery responsible for this startling deduction was made under a cavity which Miss Collum suggests was the site of a side-chamber ; here, under a disturbed filling, was a yellow soil, said to be undisturbed, in which the western prop of one of the large chambers had been sunk. ' Embedded here,' to use Miss Collum's own words, ' to a depth of 15 cms. below the natural soil, into which the lowest course of

*We have ascertained that this is an offprint from the *Transactions* of La Société Guernesiaise and can be obtained from the Hon. Librarian, the Guille-Allés Library, Guernsey for 2*s* 6*d* (by post 2*s* 10*d*). It was published in 1934. EDITOR.

the " placed " tumulus stones had been rammed, we found several scraps of black sodden material . . . when they had become dry, they turned out to be sherds of black Gaulish pottery '. These sodden sherds, the excavator claims, were *in situ* ; they ' had been trodden in to the excavated clay of the site when the original builders cut into the slope and were setting up the props of the monument '. Earlier explorations, she says, had not disturbed this natural sub-soil, but in view of the fact that Lukis had certainly dug into it in the main chamber, and in the total absence of any explanatory sections showing the exact position of the sherds and their relation to the various deposits in the monument, we are not convinced by Miss Collum's claim.

An obvious corollary, if the claim be granted, is that all of the Gaulish pottery found in the chambers by Lukis is contemporary with the monument ; how then are we to explain such pottery as the tulip beakers found by Lukis in the same place ? And what are we to say about the tanged bronze dagger, and the polished serpentine axe-head ? Miss Collum will have to produce unmistakable evidence from sites which have not been meddled with, before we are prepared to throw away our conceptions of the chronology of such objects as tulip beakers, stone axes, flat bronze daggers, and barbed and tanged arrow-heads, all of which have been found within megalithic chambered tombs. Incidentally, is it really true that archaeologists are slow to realize ' that the double conjunction of hand-turned and wheel-made pottery, of flint implements and objects made of metal, is not incompatible with contemporaneousness '—we thought that bogey had been laid long ago.

A loose plan enables the reader to follow the text closely. Many photographs show the excavation in progress, but neither their merit nor their number offset the omission of diagrammatic sections. With one notable exception, none of the pottery is illustrated ; it is true that only eleven sherds were found, but in view of the excavator's revolutionary conclusions based upon them, the reader should have an opportunity of studying these few sherds for himself.

The noteworthy find which is well described and illustrated is a small four-sided flask discovered by the foreman during the restoration of a broken capstone, and in Miss Collum's absence. Its fabric is described as identical with that of other sherds from American and Channel Islands megaliths. Its form alone is unusual, and it is compared with two clearly related flasks from megalithic graves in Denmark, which by reason of their contents, ' amber and flint and stone implements that *are obvious copies of metal tools* ', are classed as Neolithic by the Danish authorities. We do not think the paradox which Miss Collum emphasizes by italics would be admitted as a serious bar to a Neolithic date by the majority of archaeologists. It is a pity that the flask was not examined more critically. In passing, we noticed the omission of Professor Childe's and Mr Piggott's definitive papers dealing with Neolithic pottery from the full and careful bibliography appended to the report.

This little pot provides Miss Collum with an opportunity for the exercise of that free and familiar style which she frequently adopts :—

> ' Examined under the pocket microscope, that little pot bears the impress of some textile in which it was wrapped or on which it stood when the clay was still damp. That must have happened before firing ; but the warp and woof of that material were coarse in comparison with two exceedingly fine threads which I found, amongst some neutral-tinted fibres, adhering to the rounded base of the pot. They were too fine to be seen by the naked eye ; one was white and one red. I could find nothing so fine as they are, except the fibres of which a single linen

thread, in a fine Irish linen handkerchief, are twisted. The possibility of any silk fibres having coming into contact with the pot since its discovery were investigated and eliminated. Hence this little pot, or " bottle " as its finder more correctly termed it, at once calls up a vivid picture of a chieftain's wife or favourite concubine going to her death with a little locally-made pot of unguents or perfumes clasped closely to the exquisitely fine material of her dress or veil—perhaps imported through Carthage or Masillia and dyed at Sidon. What modern detective story can provide a thrill to compare with that '!

It is axiomatic that we cannot all write alike, and in these days of uniformity perhaps a judicious diversity should be encouraged, but for all that, we cannot pretend to admire such passages in a scientific excavation report.

Dr Cameron and Miss Tildesley find themselves unable to attribute the human remains to any exact cultural period. To those interested in primitive anatomy, their excellent and careful comparative studies are invaluable, but very wisely they point out ' the unreliability of facile attribution of date and race to scanty material such as this from Guernsey '.

The report concludes with a seventy-page appendix, the result of two years of research on the part of the author, entitled :—

' Various aspects of the Male-Female creative principle, with special reference to the Messenger as " Word " and as Guide in Ancient Oriental religion, and in the Celtic-speaking world, and their survival in Ireland, Scotland, Britain, and America '.

It amplifies Miss Collum's contention that the figure on the underside of the second capstone at Déhus is ' a symbolic representation of the Male Principal in the God-head ' intended for a composite Gaulish Dispater-Hermes, which thus, in her view, confirms the Gaulish date of the tomb. R. F. Jessup.

BEITRÄGE ZUR VOR- UND FRÜHGESCHICHTE BÖHMENS. *By* Leonhard Franz (Mitt. d. deutschen Ges. d. Wissenschaften u. Künste f.d. tschechoslowakische Republik in Prag, N.F., 1). *Prag*, 1935. *pp.* 83 *and* xxxiv *plates.*

The volume contains reports of journeys and excavations undertaken by the author in the Böhmer Wald and northwestern Bohemia. The most interesting points are : (1) excavation of a rock-shelter near Krummau ; abundant remains of cave hyena, woolly rhinoceros and horse (*Equus germanicus* is new to the reviewer !) ; a few rough implements of hornstone and claystone and some crudely worked bone tools point to Menghin's ' bone culture '. The author questions whether this site, Petershöhle and Mixnitz, all bone-culture stations, should not be referred to the Laufen oscillation rather than to the Riss-Wurm interglacial where they are usually placed ; (2) a Late Bronze Age hoard and other stray finds illustrating routes through the Böhmer Wald ; (3) graves and settlements of the Bylany culture which, Franz reminds us, lasted down into La Tène A times in Bohemia ; (4) trial trenching of the rampart of the Radischenberg near Kaplitz. No built-wall was found but some of the granite pieces in the rampart had been melted—vitrified !—and charred logs lay above virgin soil. Franz suggests a very interesting, but quite hypothetical, reconstruction of the work as a stone rampart faced on either side with revetments of timbers, not planted in the ground (he found no post-holes) but tied together with transverse beams ; (5) a rectangular ' granary ' 15 m. by 7.50 m., and

pit-dwellings of the stroke-ornamented variant of Danubian culture. In a useful survey of the climatic conditions and agricultural methods, Franz cites from Brøgger's *Sigd, ljä och snidill* (1933) the results of Curwen's well-known work on field-systems.

V. G. Childe.

CYPRUS: DEPARTMENT OF ANTIQUITIES. Report no. 2, 1934. *Government Printing Office, Nicosia,* 1935. *pp.* 27, 12 *plates, and plan.* 4*s.*

The Department of Antiquities in Cyprus is to be warmly congratulated on this report. It is a great advance in quality of publication on the meagre annual reports of earlier years, which were rarely illustrated. The Government printing office has shown the adequacy of its resources in the excellent typography, the good paper and the exceedingly clear blocks. It is high testimony to the enterprise now evident in the island.

Archaeologically the report covers a heterogeneous mass of finds—some accidental, some due to excavation—from the newly identified Neolithic period down to Byzantine times.

Mr Dikaios' Neolithic finds at last complete the story of Cypriot prehistory—but surprisingly; for the massive white-slipped red-designed vessels of this age bear no relation at all to the wares of the Bronze Age in shape or fabric. Here, indeed, is a new and important element in Cypriot archaeology. The very extensive site of Erimi has much still to tell us.

For the Classical period the stone ashlar tomb of Pyla near Larnaca, with its apotropaic gorgoneion and attendant sphinxes, gives us a fine addition to fifth century sculpture and useful knowledge of burial customs of that neglected Cypriot period. Attic vases, a sixth-century limestone head and a really important series of Byzantine vases all help to enrich the museum, which is now rapidly attaining a position of first-rate importance among Mediterranean museums.

S. Casson.

THROUGH THE WILDERNESS. *By* H. J. Massingham. *Cobden-Sanderson,* 1935. *pp.* 316, *illus.* 15*s.*

This book is described as ' an attempt to illustrate what is wrong with country life, and so the fundamentals of national life ', in the terms of the author's own experience. But the illustrations are of Avebury, the Whiteleaf Cross and the Ridgeway, and for the rest it all boils down into the rather commonplace fact that a journalist has retired to a house in the country and has now written a book about it. Mr Massingham continues to write ' literary ' books about the past, though he has never made any contribution to knowledge, and seems incapable of learning from the work of others or even presenting their results accurately before his readers. Otherwise he might have copied Grim's Ditch from my ' admirable map ' (to which he refers on p. 183) and so perhaps have got it right on his own. Had he read the accompanying article (or had the eye to see them for himself) he could have learnt that none of the Berkshire Grim's Ditches has any linear connexion with those across the Thames, and that one of the former is an earthwork (a ' bivallate ') of an utterly different character (and probably of a different age). He would not then have called Grim's Ditch ' the great boundary line coming from Wiltshire '. Almost every page contains at least one statement as misleading as this.

It is not altogether Mr Massingham's fault that he does these things. His heart is obviously in the right place; it is his head which is weak. But it is necessary to warn

our readers that, for all his superficial learning, he is an untrustworthy guide. The trouble is that bad books drive out good ; that for every worthless book written, several worth-while books must remain unprinted. It is the thought of this that envenoms the critic's shafts and forces him to denounce ' literary ' rubbish. O.G.S.C.

RATS, LICE AND HISTORY. *By* HANS ZINSSER. *George Routledge*, 1935. 10*s* 6*d*.

It is claimed by the publisher that the author of this book ' throws a flood of light on history as hitherto interpreted ' and ' shows incontestably that again and again disease has been the deciding factor in the history of human activities '. These claims are by no means without foundation, but it must be admitted that the book is very badly put together ; one is presented with masses of undigested facts, and left to arrange them as best one may. That is not how history or biography should be written. As for the ' irresistible humour, which never degenerates into flippancy ', we were able to resist many facetious remarks without difficulty.

Nevertheless, as an offset to the dullness of the normal text-books of political history, this book is welcome and valuable. It marks a stage in the advance towards that complete materialist account which will one day be written. ' What real interest can I have in the death of a Peloponnesian tyrant or the sacrifice of a young princess of Aulius ', asked Beaumarchais, just before the French Revolution. But we can all be interested in the activities of a microbe which flourishes on warfare and may kill us in the next outbreak. That microbe has therefore real historical interest for us.

O.G.S.C.

ON THE INTERPRETATION AND DATING OF THE SITE OF BELO BRDO AT VINCA IN YUGOSLAVIA. *By* VLADIMIR J. FEWKES. *Proc. American Philosophical Society*, 1935. *pp.* LXXV, 651–72.

This amusing note is primarily concerned with the classic prehistoric site of Vinca, a *tell* on the Danube just below Belgrade. But an alternative title would be ' the vacillations of Vasic '; for the writer tabulates the various opinions held by that savant during the last 30 years ; and they have changed on an average once in every three years. In 1905 Professor Vasic put the end of the occupation-period of Vinca at ' the so-called Hallstatt period '; in 1934, after nearly 30 years work there he ' supposes that the foundation of Vinca took place about the year 600 B.C.', that is to say, that it ended some time *after* the date when he thought, in 1905, that it began ! ! The intervening years witnessed various minor oscillations, but have produced no adequate account of the stratification of the ten metres of archaeological deposits, though Vinca represents ' the highest cultural attainment in a large area '. We are told, further, that ' there is, in reality, no thorough account of the pottery '; but Professor Vasic's field-explorations are not yet completed.

O.G.S.C.

THE ARCHAEOLOGY OF ROCHFORD HUNDRED AND SOUTH-EAST ESSEX. *By* WILLIAM POLLITT. *Southend-on-Sea : published by the Public Library and Museum Committee of the Corporation*, 1935. *pp.* 59 *and* 32 *plates.* 6*d* (*post free* 9*d.*)

This book is a reprint of a paper from the Transactions of the Southend-on-Sea and District Antiquarian and Historical Society, vol. 3, no. 1, 1935. It is a model of what a regional archaeological survey should be and the Corporation of Southend is to be congratulated on its enterprise in reprinting it.

The first part consists of an admirable interpretation of the available evidence. This district is a part of the Thames basin and its prehistory is very much the same as that of the southern shore, though in Roman and Saxon times it was almost deserted. There is very little to criticize in this book, though I am quite sure that Mr Pollitt does not really believe that the division of the Iron Age into A, B and C, is ' based on the geographical areas to which the distinguishing types of pottery are almost entirely confined '. This division of the period in question has a distinct chronological significance as well as a regional one.

The second half of this survey consists of an archaeological gazetteer. To the archaeologist this is the most valuable part and it is extremely well done.

The plates are excellent, though it is a pity that, after Mr Pollitt's careful remarks on the Neolithic period, plate XV, which is called ' Neolithic Axes ', should contain excellent examples of the Mesolithic period as well.

This sort of publication does not call for a very profound archaeological knowledge and it is the kind of book that many museum curators might produce to enlighten others on the subject of local finds. If any are inspired to produce small local surveys of this type, I hope that they will treat Mr Pollitt's book as their pattern. He has, however, one great advantage over most of his confrères, the support of an enlightened committee in financing its publication. NORMAN COOK.

The How and Why Series : No. 17. THE ROMANS. *By* JACK LINDSAY. *A. and C. Black. pp.* 96, 6 *illus. by* PEARL BINDER. 2*s* 6*d.*

This book is an attempt to sketch out the development of Rome's Empire and to explain how a small Italian town came, in the author's opinion, to be the most important factor in the building of modern Europe. Mr Lindsay thinks that the realization that our culture is in all its deepest and most valuable elements Roman, ' would do more than anything else to save us from the domination of the machine and the endlessly repeated sameness of our factory products '. This last phrase is seen to be an unfortunate one when we recall the great flood of mass produced objects that swamped the Roman provinces during the first few centuries of our era, though it is in its law and its sense of justice that the author considers Western Europe to be the child of Rome, not in its material culture.

The narrative of Rome's growth from farmer-soldiers to a people of business men is told with a refreshingly modern outlook. The disruptive force of an increasingly wealthy and powerful middle class seemed to bring Rome near to annihilation during the first century B.C. The author thinks that the Roman instinct, searching for a uniting force, found it in a new form of their old patriarchal customs and religious belief. Caesar became the focus for their emotions as the father of his people and the genius of Rome. The murder of Caesar brought about indirectly one of his aims—the more equable distribution of wealth, but in time a new wealthy class sprang up. ' The crisis that Caesar dominated, and the crisis that Diocletian saw gathering force, were the same at root. Both were based on the inability of the Government to find a method of production and sales that would bring about a more equable distribution of goods '.

One cannot but be struck by the similarity of the economic problems of the Roman Empire with those of the world today. Mr Lindsay points out that for good or bad, our world is the Roman world and that whatever solutions of our problems we may find, we must look to the Roman world for the sole analogy of all that happens to us.

One is tempted to wish that more of our culture was based on that of the simpler people with whom Mr Piggott deals in the next book of this series and that less of it was the legacy of Rome.

No. 18. THE PROGRESS OF EARLY MAN. *By* STUART PIGGOTT. *pp.* 96 *and* 6 *illus.* 2*s* 6*d.*

This contains a splendid reconstruction of the life of Early Man in England. Although Mr Piggott's studies are usually of small potsherds, he has not allowed his classification of objects to swamp his interest in the men who made them. This interest in prehistoric man as an individual has given his book a value not only to the young for whom this series is primarily intended, but to all those archaeologists whose studies of small objects have warped their sense of proportion.

As one might expect, the chapter on the Neolithic period is the best thing in the book. It is of great interest to read carefully the reconstruction of the everyday life of these people and to determine upon what evidence each of Mr Piggott's picturesque touches are based. The introductory chapter on the archaeological method will be useful to those who find it difficult to reply to the suggestion that the conclusions of archaeologists are solely a matter of guesswork.

A curious mistake has been allowed to remain, in spite of the otherwise careful proof-reading. On page 78 Mr Piggott talks of Celtic art reaching Britain about 600 B.C., but on the next page he says that it was brought over to England about 100 B.C. The earlier of these two dates is, of course, a slip of the pen, but one gets the feeling that the author is not quite at home with the whole of this section on the Early Iron Age.

While those for whom history is a series of battles, and every prehistoric tool is a weapon, will find no pleasure in the hint of pacifism in some of the author's remarks, the great majority of readers will appreciate Mr Piggott's sense of proportion.

I would particularly recommend this book to school-teachers who have to instruct junior forms in the elements of our prehistory. They will find that it gives just that accurate, yet colourful information that they require. There is a useful bibliography.

NORMAN COOK.

THE PARISH CHURCHES OF ENGLAND. *By* J. C. COX *and* CHARLES BRADLEY FORD. *B. T. Batsford,* 1935, *pp.* 112, *illus.* 7*s* 6*d.*

In this new edition of Dr Cox's *The English Parish Church*, originally published in 1914, Mr Ford has added new chapters and reduced the detail in some of the old ones; he has improved the quality and reduced the quantity of the illustrations and has made what was a thorough, even if a slightly pedantic study, into a fine picture-book, which has nevertheless retained much of Dr Cox's valuable information.

Autres temps, autres mœurs. The 29 ground-plans of the original book are now reduced to 9. Its exhaustive index is replaced by one containing little save names of places, but a glossary of architectural terms is added, so that the new edition, produced in Messrs Batsford's usual good form, will probably appeal to a wide, if different public from that which treasured the old book. They may well enjoy the gay jacket in spite of its peculiar grammar, and be stimulated by the foreword even if they disagree with it.

DINA PORTWAY DOBSON.

THE SPIRIT OF LONDON. *By* Paul Cohen-Portheim. *B. T. Batsford*, 1935. *pp.* xii, 116, *and* 144 *plates.* 7*s* 6*d.*

The Spirit of London is especially to be commended for its photographs. There are nearly 150 of them, a veritable picture gallery, illustrating every conceivable mood and phase of life in London. The camera wanders from Whitechapel to Park Lane, and from Hampstead Heath to Camberwell Green, collecting on its journey all the usual sights but presenting them in such a way that they never appear just ' sights ', and meeting here and there on the road such brilliancies as ' London Drizzle ', ' The Time of Day in Belgravia ', and ' Watercress Barrow '. It is only fair to point out that many of these pictures are supplied by press agencies, but there are others which are the work of such notable camera-artists as Dixon-Scott and Taylor, and the whole series has been admirably chosen and reproduced.

The text is hardly less remarkable. Cohen-Portheim's knowledge of London was extraordinary in every way. He was as happy in Whitehall as in Whitechapel—and for that matter anywhere in the capitals of Europe—and whether he was in the National Gallery or in his tavern off the Euston road, his shrewd cosmopolitan mind was never at rest. True, his judgment (especially in matters of art) will not always meet with general approval, and I do not think for one moment he would have had it so. His enthusiasm over Epstein's sculpture, his drastic condemnation of Sargent as 'meretricious and cheap, if clever', his bold statement that there is no interest in experimental art in London at the present time, are all points of considerable opinion. The author himself says that this is not meant to be a complete guide-book, and yet it hopes to guide: 'where a guide-book enumerates, this book appreciates', and it does so with a forthright excellence.

This review will appear almost a year after the book was first published. To many readers of Antiquity it will already have commended itself: those who do not possess a copy ought straightway to go round the corner to the bookseller's with three half-crowns in their hand. R. F. Jessup.

THE BEAUTY OF BRITAIN, *introduced by* J. B. Priestley, with contributions by Edmund Barber, Harry Batsford, George Blake, the late J. S. Fletcher, Charles Bradley Ford, Charles Fry, Clive Rouse, A. G. Street, Will F. Taylor, Sir William Beach Thomas, and Edmund Vale. *B. T. Batsford*, 1935. *pp.* viii, 248 *and about* 100 *plates.* 5*s.*

This is the second volume of Batsford's new Pilgrim's Library. It contains a pictorial review of the same high standard as the rest of the Batsford books, and it presents in a scholarly way a topographical account of the Britain that is not yet over-run by the charabanc. Each of the regions described is an area ' convenient and profitable for a touring holiday ', and this means touring in its best and legitimate sense. It must not be thought, however, that the authors are out of sympathy with the charabanc-tourists; their point of view is well put by Mr Priestley when he says that he does not think the ordinary Briton is completely insensitive—he may be enjoying an experience that he is unable to communicate to the rest of us. In any case this is a first-rate holiday book. R. F. Jessup.

DER RÖMISCHE KAISERKULT BEI MARTIAL UND STATIUS. *By* Franz Sauter. *Stuttgart, Berlin: W. Kohlhammer*, 1934. *pp.* 178, ix. *RM* 9.

The worship of the Roman Emperor is a subject that continues to attract interest and research, as the excellent short bibliography in this book attests. Its importance is

as obvious as many of its details are obscure. The present work, by a pupil of Professor Weinreich, on a special corner of the subject where evidence is certainly plentiful and should be productive of results, need ask no further justification. The great merit of Dr Sauter's book is his thoroughness in collecting material and his ability in classifying it. The Emperor appears in turn as Saviour, as Prince of Peace, as ' Dominus et Deus ', as restorer of the ' Age of Gold '. He is compared to the gods themselves—to Jupiter or Hercules—often to the disadvantage of the latter. He is raised above the common level by such epithets as ' magnus ', ' sanctus ', ' aeternus '—he is placed among the stars, he is credited with preternatural influence on man and nature and is the object of a worship that constantly tends to be confused with the worship of the gods. The student in quest of illustration of any of these themes will find here a rich mine of information. Advantage is taken, at various points, of the opportunity to discuss and illuminate interesting or difficult conceptions. We may quote, as example the discussions of Εἷς Θεός (p. 15), the ' magna manus ' of the Emperor (p. 103), ' Aeternitas Augusti ' and ' Aeternitas P.R.' (pp. 116 ff). Dr. Sauter concludes, very soundly, that the Roman conception of Aeternitas was certainly influenced, but certainly not initiated or determined, by Egyptian and other Eastern conceptions.

Perhaps Dr Sauter might have stressed more than he has done, what he certainly knows—that Martial and Statius often present rather a caricature than a fair expression of Emperor-worship as generally accepted by decent-minded Romans. Emperor-worship was no mere farce or hypocrisy. There is genuine religious sentiment attaching to it, which Martial himself occasionally fails to destroy. But for a poet to represent Domitian as a new Jupiter superior to Jupiter Optimus Maximus was really to insult his calling, his Emperor and his deity in one breath, and ancient Rome really knew that almost as well as we do. Subject to this *caveat*, Dr Sauter's book may be used with great pleasure and advantage.

H. MATTINGLEY.

A HISTORY OF THE ROMAN WORLD FROM 753 TO 146 B.C. *By* HOWARD H. SCULLARD. *London : Methuen*, 1935. *pp.* XV, 504, *with* 3 *maps.* 15*s.*

This book forms part of Methuen's *History of the Greek and Roman World*, edited by Dr M. Cary, and it is designed as the fourth volume in the series, covering the history of Rome from the earliest times until the Age of the Great Conquests and carrying the narrative to the point where it was taken up by F. B. Marsh's *History of the Roman World from* 146 *to* 30 B.C., which was published previously. (See next review.—ED.)

The book is thoroughly business-like in its arrangement, style, and information. It is divided into four parts, the first three dealing primarily with the political and military history of Rome until her emergence as the supreme power in the Mediterranean, the fourth with Roman life and culture (economic and social organization, literature, art, and religion) during the same period. The story is clearly told, and the two main achievements of Rome during the years covered by the volume—the unification of Italy and the founding of an overseas Empire—are kept well in view all through the detailed account of events. While making his narrative clear and vigorous, the author has not failed to indicate where the dark places are in the early history of Rome and on what points modern authorities disagree. His method in dealing with controversial matters is, as a rule, to summarize the arguments on both sides, giving the names of their chief exponents, and then tentatively to choose one side or the other. His attitude towards the early history is fairly conservative, and the influence of the *Cambridge Ancient History*

and of De Sanctis' *Storia dei Romani* is strong—a debt which the author duly acknowledges. Certain more specialized questions and certain controversies to which full justice could not be done in the narrative are dealt with in Appendices, of which there are ten. A chronological table and a short bibliography are added.

Altogether the book is a very competent and useful piece of work, and may be heartily recommended to all—especially sixth-form Masters and University Students—who want a history of this period in one volume that indicates the lines of modern research and attempts a readable synthesis of its results. R. C. CARRINGTON.

A HISTORY OF THE ROMAN WORLD FROM 146 TO 30 B.C. *By* FRANK BURR MARSH. *Methuen*, 1935. *pp.* 427, *with* 5 *maps*. 15*s*.

It is difficult to say much that is new of a period that has been so thoroughly worked over as the close of the Republic, but Professor Marsh showed in his *Founding of the Roman Empire* that he could see old problems from a new angle, and write with freshness and vigour. His brief description of the period from Sulla to Caesar and his analysis of the failure of the Republic made us look forward to his fuller treatment of the period. We must confess to a measure of disappointment, though there are good things here too. The picture of Sulla combines what is best of Carcopino and the *Cambridge Ancient History*, and adds something more ; Caesar, more closely woven into the texture of his times, is a more intelligible figure, and Pompey is nearer flesh and blood than is his usual fate. The description of the political manoeuvres that preceded the civil war is fair to both sides ; and the emphasis laid on the rural as opposed to the urban proletariate in the army reforms of Marius is new and important. But the book has also serious weaknesses. Marsh has been careful not to overload his narrative with detail, and to avoid controversy where the issue is unimportant. This is sound policy in a book of this scale, provided that the narrative is backed by a thorough knowledge of the sources ; but several passages raise doubts on this score. In discussing the enfranchisement of the Italians, for instance, Marsh would reconcile Appian and Velleius. The ten new tribes of Appian's account represent the restrictionists' first proposal in 90 B.C., never carried into effect ; the eight old tribes of Velleius represent their second position under Sulla in 88 B.C. But Appian implies that his proposal was carried into effect, and Velleius that the confinement to eight tribes was contemporary with the citizenship law : the two accounts surely cannot be reconciled in this way. Saturninus' agrarian law is confused with his colonial law, though the sources do not combine them ; and in suggesting that Caesar recruited two of the three legions that wintered at Aquileia in 59–8 B.C. during his consulship, Marsh overlooks a passage in the Commentaries (B.G. I, 10) where Caesar refers to them as ' legiones veteranorum '. There are also important omissions. The *Lex Acilia*, which is a vital point in the evidence for Gaius Gracchus' work, is not mentioned ; and the discussion of the political results of the Social War is very incomplete. When did the Italians who were fighting in 88 B.C. get the citizenship, and what does Livy's Epitomator mean by ' novis civibus suffragium datum est ' (84 B.C.). Marsh seems to imply that, when citizenship was granted, the Italians kept their local institutions, apparently until the *Lex Julia Municipalis* ; but it seems clear from inscriptions and from Cicero's writings that a standard pattern of constitution had been imposed long before Caesar's dictatorship.

The economy in footnotes makes it difficult at times to know whether Marsh has reason for departing from orthodox views. The colonization of Narbo Martius is made prior to the formation of a province in Transalpine Gaul ; and, though the colony

was founded under pressure from the Knights, their interests were apparently unaffected by the invasion of Cimbri and Teutoni. No evidence is given for the statement that Caesar conferred full citizenship on communities in Gaul.

But of more importance to the book as a whole is the analysis of the tribal and centuriate assemblies. Marsh does good service in trying to give a practical picture of how these assemblies worked, in analyzing the composition of the rural tribes, and the importance of the group vote. But his conclusions seem too sweeping. The senate, he thinks, owed its continued supremacy in the second century not primarily to public confidence, but to a political machine. The nobles controlled the votes of the rural tribes by their retainers, and their supremacy was only threatened when the knights began to build up a machine of their own by securing retainers who voted in the rural tribes. No doubt the importance of *clientes* in voting was considerable ; but the insistence throughout this book on ' the senatorial machine ' oversimplifies history. It seems clear that, if the commons' interests were seriously affected, they could and often did outvote both senators and knights ; and, during the reforms of both Gaius Gracchus and Livius Drusus, it is clear that the senate is by no means a united body. Throughout the period there seems always to be a strong minority of radicals in the house, and perhaps a larger number of independents. No doubt there was considerable jobbery in the assemblies, and, by taking advantage of the group system, a little money could go a long way ; but it is not impossible that a lot of decisions were made on their merits, and that oratory could influence votes.

The book closes with two general chapters. The first reviews social conditions in Italy, the army system and provincial government. There is good material here, but a history of the Roman world should have said more of the development of such provinces as the Spains and Narbonese Gaul. The final chapter, devoted to literature, is overloaded with detail. It might well have been more general in nature, and should have included the Virgil of the thirties. R. MEIGGS.

PREHISTORIC MAN IN IRELAND. *By* CECIL P. MARTIN. *Macmillan*, 1935. *pp.* XI *and* 184, *with* 11 *plates.* 21*s.*

Dr Martin's book is assured of a wide welcome. Its appearance is a sign of the new spirit in prehistoric research which is now astir in Ireland, north and south ; and in its inception, like many other related activities, it owes much to Dr Adolf Mahr, Director of the National Museum of Ireland.

We find here not merely (in the author's modest words) ' a fairly complete account of all available Irish prehistoric skulls ', but also a well-documented survey of the modes of life and death of the people themselves. There are statistical tables, with full anthropological measurements, for 122 skulls of known or uncertain date from the Kilgreany Cave man to the Norsemen ; in addition particulars of 73 Irish skulls of modern or recent times are provided for comparison. Whatever changes may be found necessary in the interpretation of the anthropometric evidence, this body of material, widely and diligently collected, must be of permanent value.

An introductory chapter blames the ancient Annalists (and may we add the modern ?) for our present state of ignorance concerning the racial characters of the inhabitants of prehistoric Ireland, and contains some admirable sentiments on the current conception of race. If Dr Martin later reverts, under the stress of analytical concentration, to a simpler connotation of the word ' race ', he does not appear to be conscious of the

discrepancy. He might claim that he wishes to be understood by the general reader, for whom two excellent chapters on the dating and measuring of ancient skulls are provided. A similar simplification is apparent in the accounts of ' invasions ', which figure only less largely in this book than in the Annals. Dr Martin reminds us that Ireland, from its space-relations and environment, may be expected to retain old racial stocks, yet he is so taken up with his invaders that he sometimes overlooks the distinction between culture and race, and is tempted to define a race and deduce migrations from the measurements of a few skulls. One feels that Ireland is regarded too much as an appendage of England and not sufficiently as an island in its own right among the seaways of western Europe.

In a valuable series of 9 chapters Dr Martin deals with the skeletal material from as many successive culture stages. On the whole he is inclined not to reject the authenticity of Kilgreany man, though he weighs the doubts that have been thrown on the age of the Co. Waterford discoveries. The people of the 25-ft. raised beach are treated at some length, for the author is on old ground here. He finds ' a race of low stature, with very long narrow and high skulls ' living in Ireland at this ' early Neolithic ' time. English readers will notice that the word Neolithic is used in its old sense to cover a period of indefinite duration preceding the early Metal Age. It is surely inadvisable to group together raised-beach folk and sandhill dwellers, for many of the sandhill settlements are later than the early megaliths. That the chapter really demonstrates the survival of the old shore-dwellers into later periods is a legitimate conclusion.

The megalith-builders are held to be intruders ' identical with the long barrow people of England ' yet closely related to the raised-beach folk. Dr Martin is inclined to argue from the English analogy that all the Irish megaliths must be ' Neolithic ', his geological training leading him astray, it seems, in the employment of archaeological data as ' zoning fossils '.

Perhaps the most startling revelation is a ' broad-headed invasion ' of the early Bronze Age. There have been hints of it in recent writings, and the evidence now assembled is impressive on first reading, though in fact only a dozen skulls are cited and their cephalic indices are often well below 80. Dr Martin regards his newcomers as ' identical with the round-barrow people of Great Britain ', but the problems raised by the rarity of the beaker in Ireland are not faced ; it is not enough to say that ' the type of their pottery varies somewhat between the two countries '. Other possible explanations should be considered. Perhaps Dr Martin is on the right track when he identifies his broadheads, on another page, with the ' Prospectors '. We know that cremation was practised in the megalithic period, and this may have destroyed earlier remains of a similar strain. Alternatively it may be that many of the short cists described belong to the later Bronze Age and that this brachycephalic type was one of the mixed racial elements that came with the Celtic language. (' All the short cists found so far are located in the midlands or north-eastern side of the island '). Dr Martin's main criterion of date, the burial rite, is not a reliable one, and there seems no good reason for classifying inhumation graves as early Bronze Age and cremation as late Bronze Age. Nor has the food-vessel, in these days, much dating-value. It is in the late Bronze Age, if at all, that archaeology would ask for an invasion, and this is the one period where Dr Martin's zest for finding intrusive types fails him.

Whatever the ultimate solution of this and other problems may be, Dr Martin has done a great service in assembling the material, and all archaeologists are deeply in his debt. The volume ends with a new attempt to fit the legendary invasions into the scheme now advanced. Attention must be called to the disquieting number of minor slips

observed in a book with so much statistical data. They occur, fortunately, mostly in personal and place names, where they do least harm, but the repeated mis-spelling of at least six well-known authorities is unaccountable. E. ESTYN EVANS.

THE AQUEDUCTS OF ANCIENT ROME. *By* THOMAS ASHBY. *Edited by* I. A. RICHMOND. *Oxford : Clarendon Press*, 1935. *pp.* XIV, 342, *with frontispiece, 24 plates, 34 text-figures, and 7 maps.* £3 3*s*.

Dr Ashby's book on the 'Aqueducts' has long been talked of, for the author's unrivalled knowledge of the Roman Campagna, his unbounded enthusiasm and rugged energy had become a byeword amongst archaeological students in Italy. The work was planned some 30 years ago, but the intricacy of the subject, the vast amount of material that had to be reduced to order, the labour of writing, and continual digressions into other, more or less closely related topics, delayed the fulfilment of the plan, and, as we gather from the Editor's note, the manuscripts was not deposited with the publisher till three weeks before the author's death in 1931. Even then, however, the book was not yet ready for the press, and Mr Richmond—an obvious choice for the work through his own knowledge of the Roman remains and his personal acquaintance with Dr Ashby—undertook to arrange the text and see it through the press. It need imply no disrespect to the memory of the author, no suggestion that the book is anyone's but his, to say that Mr Richmond's task cannot have been an easy one and to admire the orderliness to which he has largely contributed.

The book is divided into two parts. Part I contains 47 pages : after an introduction on Earlier Topographical Study, it treats in four chapters of the Making and Preservation of the Aqueducts in Roman Times, the Staff of the Imperial Water Board, the Career and Work of Sextus Julius Frontinus, and the Engineering of the Aqueducts. The volume as a whole is designed essentially for specialists, but these four chapters, despite their packed phraseology and technical terms, will have a wider appeal than the rest. Strabo speaks of the aqueducts, along with the roads and drainage-system, as the most remarkable of the public works of the City of Rome (v. 3, 8). Their remains have stood through the ages for all to study who had the mind. Three writers at least—Lucas Holste (d. 1661), Raffaele Fabretti (d. 1700), and Diego Revillas (d. 1746)—planned large-scale works upon them, though they died before the fulfilment of their plans. Moreover, Frontinus, *curator* of the water-supply at the end of the 1st century A.D., has left in the *De Aquae Ductu* the result of his own honest attempt to grapple with the intricacies of the service under his control. Here then is a subject (it might be thought) of which it ought to have been possible long ago to write an account which was at once authoritative in detail and yet sufficiently broad in treatment to be of service to workers in kindred archaeological fields and to the general reader. But in fact, such an account was still to seek, and one of the most valuable sections of Dr Ashby's book is the fourth chapter of Part I—a masterly survey of the whole construction of an aqueduct, from the selection of suitable springs to the creation of pressure in the distributing pipes within the City—which probably comes as near to supplying that need as will be possible for many years to come.

Part II is topographical, a separate section being devoted to each of eleven aqueducts —Appia (312 B.C.), Anio Vetus (272–269 B.C.), Marcia (144–143 B.C.), Tepula (125 B.C.), Julia (40 B.C.), Virgo (19 B.C.), Alsietina (shortly after 2 B.C.), Claudia and Anio Novus (A.D. 38–52), Traiana (A.D. 109), Alexandriana (A.D. 222–235). The method of treatment

is the same in each section: first (except for the Traiana and Alexandriana, which are later than Frontinus), the relevant portions of the *De Aquae Ductu* are translated; then such further information of value is given as can be adduced from other ancient writers, chiefly in so far as it concerns repairs effected after the period of original construction: next come references to the *cippi*, and finally, forming the bulk of the section, a detailed description of all the traces of each aqueduct that are still visible or, though no longer visible, were known to the author to have been seen by earlier investigators, from its source until it loses itself either in the Campagna or within the modern city. On the technical side Dr Ashby was assisted by a careful levelling of the remains that was made by the Engineering School in Rome, the results of which were published in 1917, while his text is illustrated by drawings made soon after 1912 by the late Mr F. G. Newton. In chronological questions which depend on structural technique and building courses, Dr Ashby relied on Miss Van Deman's work, *The Building of the Roman Aqueducts*, which was published in 1934: indeed this volume and Dr Ashby's are complementary. Finally, a most important feature of the book are the seven maps which were supplied by the Instituto Geografico Militare. Those who remember Dr Ashby's strictures on archaeological works which were inadequately equipped with maps will be glad that his own last contribution is so well furnished.

Without any doubt this book will remain the standard work on the subject for very many years. Though here and there further excavation may clear up doubtful points about the course of the aqueducts; on the whole, with the passing of years, their state can only become worse, and it was time that the actual remains were recorded in permanent form. The production is of the highest order, and textual errors are rare. The photographs are numerous, and, though lacking definition in one or two instances, they serve their purpose admirably. It is a splendid work, and one of which British archaeologists may justly be proud. R. C. CARRINGTON.